

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY

For the Year 1951



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
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March 1952

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HELMINTHOLOGICAL ABSTRACTS *incorporating* BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by :

S. Bengefors	R. T. Leiper
Patricia M. Burgess	P. L. leRoux
D. W. Fenwick	B. G. Peters
A. E. Fountain	C. Rayski
Mary T. Franklin	W. P. Rogers
J. B. Goodey	Enid M. Smedley
T. Goodey	Sheila M. Willmott

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FOR THE YEAR 1951

Vol. 20, Part 3

160—Acta Medica Philippina.

- a. CABRERA, B. D. & TUBANGUI, M., 1951.—“Studies on filariasis in the Philippines. III. *Aedes (Finlaya) poicilius* (Theobald), the mosquito intermediate host of *Wuchereria bancrofti* in the Bicol region.” 7 (3), 221-229.
- b. SISON, A. B. M. & FLORENTIN, A. A., 1951.—“Human gnathostomiasis: clinical study and report of a case.” 7 (3), 231-238.
- c. YOGORE, Jr., M. G. & JULIANO, S. J., 1951.—“Report of a case of human gnathostomiasis.” 7 (3), 239-247.

(160a) It has hitherto been assumed that *Culex quinquefasciatus* plays an important role in the propagation of filariasis in the Philippines because of its prevalence and its susceptibility to laboratory infection with *Wuchereria bancrofti*. Dissection of 441 specimens caught in the town of Irosin showed that 12.7% were infected and of 309 specimens from Barrio Mabini, Casiguran, 14% were infected. No mature infective larvae were encountered. In Barrio Mabini, *Aedes (Finlaya) poicilius* showed a very high incidence of infection (35%) and it alone was found to carry infective larvae of *Wuchereria bancrofti*. Its relative abundance here is attributed to the closeness of the houses to the abaca plantations. In Irosin, where the houses are some distance from the plantations, this mosquito is rare. R.T.L.

(160b) A detailed case report is given of the first instance of human infection with *Gnathostoma spinigerum* observed in the Philippines. The patient was a Chinese who had resided during the two preceding years in Manila, but had apparently acquired the infection when in China where he used to eat fresh-water fish. The symptoms included pain in the chest and severe spells of coughing with blood-streaked sputum. A tiny, reddish, wriggling object which was expectorated was identified as a larval *G. spinigerum*. R.T.L.

(160c) Of the 50 cases of gnathostomiasis in man which had been recorded in the literature up to 1947, 34 occurred in Siam, 7 in India, 4 in China, 2 in the Malay States, 2 in Indo-China and one in Japan. With few exceptions all were identified as *Gnathostoma spinigerum*. None has hitherto been reported from man in the Philippines. The origin of the case reported by Sison & Florentin [see preceding abstract] is considered but no definite conclusion could be reached. R.T.L.

161—Advisory Leaflet. West of Scotland Agricultural College.

- a. GRAINGER, J., 1951.—“Reducing the spread of potato root eelworm.” No. 12, 3 pp.

(161a) Grainger outlines a scheme for reducing the spread of potato eelworm about a farm already partly infested, or preventing it from entering an uninfested farm. Main points are the provision of a concrete washing floor for hosing down implements, boots etc. entering the farm or moving from infested to uninfested land, and (where practicable) the grassing of infested land for as many years as possible. B.G.P.

* Titles so marked throughout this number have not been seen in the original.

162—Agricultural Gazette of New South Wales.

- a. CONROY, R. J., 1951.—"The use of soil fumigants for root knot control." 62 (8), 411-414.
- b. ANON., 1951.—"New plant diseases." 62 (8), 414.

(162a) Conroy shows from the results of four experiments that D-D mixture is effective in controlling root-knot in New South Wales. At 20 gal. per acre it is more efficient than chloropicrin at 42 gal. per acre, unless the latter has been thoroughly water-sealed, but chloropicrin is to be preferred if fungi are also to be controlled. D-D was more effective at temperatures above 68°F. In all cases tomato seedlings were used as indicator plants, the roots being assessed for degree of knotting. B.G.P.

(162b) In a brief list of diseases recorded for the first time in New South Wales appear: foliar eelworm on *Rochea coccinea* and root-knot on cucumber. B.G.P.

163—American Journal of Clinical Pathology.

- a. JEWETT, J. S., BURNER, A. M. & HOLT, C. J., 1951.—"Cysticercosis cellulosa. Report of a case." 21 (6), 590-592.

164—American Journal of Medical Technology.

- a. CHANDLER, A. C., 1951.—"Modern methods for making fecal examinations for helminthic infections." 17 (2), 64-68.

(164a) Chandler reviews the various methods now in use for the diagnosis of helminth infections from faecal samples. He concludes that for all infections other than *Strongyloides*, *Enterobius* and *Taenia*, but including *Diphyllobothrium*, the AEX method is the most satisfactory. He recommends the Scotch tape method for *Enterobius* and eggs of *Taenia*, and the examination of fresh stools for proglottids of *Taenia* (and the rarer tapeworms, *Dipylidium*, *Mesocostoides* and *Raillietina*): for *Strongyloides* he recommends the technique in which part of the faeces is suspended in gauze in warm water in a conical container, the larvae then migrating into the water at the narrowest part of the vessel, which can be examined. *Strongyloides* larvae may, however, be found in direct smears or after zinc sulphate flotation. S.W.

165—American Journal of Tropical Medicine.

- a. BERGHE, L. VAN DEN & CHARDOME, M., 1951.—"An easier and more accurate diagnosis of malaria and filariasis through the use of the skin scarification smear." 31 (4), 411-413.
- b. HOEKENGA, M. T., 1951.—"Treatment of *T. saginata* and *H. nana* infestations with atabrine." 31 (4), 420-422.
- c. KAZZAZ, D. S. & TABBARA, R., 1951.—"The effect of Repodral (fuadin) on the electrocardiogram of the dog." 31 (4), 510-513.
- d. McMULLEN, D. B., KOMIYAMA, S., ISHII, N., ENDO-ITABASHI, T. & MITOMA, Y., 1951.—"Results obtained in testing molluscicides in field plots containing *Oncomelania nosophora*, an intermediate host of *Schistosoma japonicum*." 31 (5), 583-592.
- e. McMULLEN, D. B., KOMIYAMA, S., ISHII, N., ENDO-ITABASHI, T., OZAWA, K., ASAKAWA, T. & MITOMA, Y., 1951.—"The use of molluscicides in the control of *Oncomelania nosophora*, an intermediate host of *Schistosoma japonicum*." 31 (5), 593-604.
- f. SIMMONDS, W. L., MARTIN, W. E. & WAGNER, E. D., 1951.—"Fresh-water cercarial dermatitis from southern California." 31 (5), 611-613.
- g. SIMPSON, T. W., 1951.—"A note on filariasis among the natives of Okinawa, with particular reference to possible transmission of *Wuchereria bancrofti* by *Anopheles hyrcanus sinensis*." 31 (5), 614-616.
- h. BURCH, T. A. & ASHBURN, L. L., 1951.—"Experimental therapy of onchocerciasis with suramin and hetrazan; results of a three-year study." 31 (5), 617-623.
- i. MAZZOTTI, L., 1951.—"Observations based on cutaneous biopsies in onchocerciasis." 31 (5), 624-627.
- j. MAZZOTTI, L., 1951.—"Observations on the use of hetrazan in onchocerciasis in Mexico." 31 (5), 628-632.

(165a) Superficial scarification of the skin in the middle of the scapular region provides a very accurate method of diagnosis of infections with *Acanthocheilonema perstans*,

Loa loa, *Wuchereria bancrofti*, *A. streptocerca* and *Onchocerca volvulus*, if the scarified skin is thoroughly squeezed between the thumb and forefinger so as to obtain serous fluid largely made up of dermal juice with little or no extravasated blood. The fluid is spread on a microscopic slide and stained with Giemsa.

R.T.L.

(165b) The oral administration of 0.8 gm. of atebirin hydrochloride caused the passage of a tapeworm in 32 out of 35 Honduran patients with *Taenia saginata*, but the same dose caused only temporary disappearance of eggs from the faeces in five children with *Hymenolepis nana*. Two tablets (= 0.2 gm.) were given every ten minutes for four doses with two tablets (0.6 gm.) of sodium bicarbonate, followed two hours later by two ounces of sodium sulphate. Phenobarbital in doses of 0.5 to 1.5 grains was given half an hour before the first atebirin dose and usually repeated shortly before the purgation. Pyridoxine hydrochloride (0.1 grain) was administered intravenously in eight patients half an hour before the first atebirin dose in an attempt to abort nausea.

R.T.L.

(165c) No significant changes in the electrocardiogram of normal dogs followed the intramuscular administration of Repodral [fouadin] in doses of 0.5 c.c. per kg. body-weight over a period of two days.

R.T.L.

(165d) Of 26 chemicals and mixtures tested on *Oncomelania nosophora* as molluscicides in field plots, encouraging results were obtained with calcium cyanamide, sodium dinitro-*o*-cresol, dinitro-*o*-cyclohexylphenol (and its dicyclohexylamine salt), pentachlorophenol and sodium pentachlorophenate. Although calcium cyanamide has been distributed by the Government for some years and the snail population was reduced immediately after its application, the intervals of three to five years between the applications allowed a return to normal. The three dinitro compounds were the most effective chemicals tested on the basis of the amount required. They were all lethal to the small animals found in the ditches. Crayfish, which are of some value in the control of *O. nosophora*, were killed, but none with the possible exception of sodium dinitro-*o*-cresol injured plants in the dilutions required for snail control. The results with pentachlorophenol were irregular; sodium pentachlorophenate was the most irritating. These two chemicals are relatively inexpensive. It is pointed out that snail control without treatment of infected definitive hosts might prove ineffective in eradicating the disease.

R.T.L.

(165e) Following the results obtained in testing various chemicals against *Oncomelania nosophora* in field plots [see preceding abstract], McMullen *et al.* have carried out tests under field conditions. Sodium pentachlorophenate, dinitro-*o*-cyclohexylphenol and its dicyclohexylamine salt were used and gave similar results but the last was the most expensive. When applied in the spring in Japan the average reduction was 87.7%, and when applied in the autumn, it was 81.7%. When applied in spring and in autumn the reduction averaged 95.4%. Eradication of the molluscs would necessitate almost continuous surveying and treatment.

R.T.L.

(165f) Dermatitis due to a fresh-water cercaria has not been reported in California previously. Natural and experimental dermatitis were produced by cercariae from *Physa osculans*; 2% of the snails discharged cercariae of three distinct types, none of which has been described previously. Consideration of their taxonomy is deferred. Several cases of this cercarial dermatitis occurred after wading in an artificial lake at Alondra Park in Los Angeles County.

R.T.L.

(165g) As filarial larvae were revealed by dissection in four out of 49 *Anopheles hyrcanus sinensis* collected at the village of Sedake, on the eastern coast of Okinawa, where these mosquitoes were abundant, Simpson regards this species as a possible vector of filariasis in Okinawa and the neighbouring islands.

R.T.L.

(165h) Hetrazan does not destroy the adults of *Onchocerca volvulus*; therefore the disappearance of the microfilariae, although immediate and spectacular, is only temporary. Suramin given intravenously causes the microfilariae to disappear more gradually, but as it kills the adults this disappearance is permanent in about 90% of the cases treated. Simultaneous treatment with both would combine the rapid action of hetrazan with the permanent effect of suramin, but in view of the inconvenience it is not preferable to intravenous suramin treatment alone. The course for an adult consisted of an initial injection of 0.5 gm. followed by seven weekly injections of 1 gm. each. Administration should not be continued in cases of marked intolerance to the initial dose or of peripheral oedema during the treatment. R.T.L.

(165i) Using Macfie & Corson's technique for cutaneous biopsy on Mexican onchocercal patients, Mazzotti has confirmed that the shoulder and neighbouring areas give a greater percentage of positive results than any other region of the body. In 66% of the cases with a single nodule more microfilariae were found at the shoulder than at the site of the nodule. Repeated biopsies are important for diagnosis or assessment of the effects of treatment, for negative and positive biopsies frequently alternate. R.T.L.

(165j) Following hetrazan treatment microfilariae recurred in most of the onchocercal patients after negative biopsies over periods up to eight months. Although the nodules had been removed in most cases some adult filariae may have escaped detection, and nodules were still present in some cases. Studies on the density of microfilariae needed to ensure the infection of simuliid vectors would be necessary and action against the vectors would appear to be essential to ensure permanent results. The prophylactic use of hetrazan in endemic areas would probably not be entirely successful as it does not cause the disappearance of microfilariae in all cases. R.T.L.

166—American Journal of Veterinary Research.

- a. LEVINE, N. D., 1951.—“Screening tests of iodine compounds against horse strongyle larvae.” 12 (43), 110–115.
- b. BATTE, E. G., SWANSON, L. E. & MURPHY, J. B., 1951.—“New molluscicides for the control of fresh water snails.” 12 (43), 158–160.

(166a) From a study of the effect of 55 organic and 6 inorganic iodine compounds on strongyle larvae and/or eggs in horse manure, Levine concludes that the most important factor determining the degree of toxicity of a compound is the manner in which the iodine atom is attached to the molecule. He finds that inorganic, aliphatic, onium, and heterocyclic ring compounds in which the iodine atom is not directly linked with a ring carbon atom are more active than ring compounds with a direct linkage between the carbon atoms of the ring and the iodine atoms. Twenty-four compounds which were lethal at a concentration of 0.0005 M. or less are listed. R.T.L.

(166b) Of 33 compounds which were tested as molluscicides on limnaeid snails from Florida, copper sulphate and dinitro-*o*-cyclohexylphenol gave 100% kill at a concentration of 1:1,000,000 in 24 hours. Crude benzene hexachloride (gamma isomer 5%) and sodium tetrachlorophenate were 100% lethal at a concentration of 1:600,000. Other compounds in the dinitro and chlorophenate series which have shown promise are being tested. The authors suggest that an ideal molluscicide should be 100% lethal within 24 hours at a concentration of 1:1,000,000, non-toxic to man, animals and grass, relatively inexpensive and not affected by the organic content of water. It should also kill snail embryos on contact and its residual action should be long enough to kill young snails soon after hatching. P.M.B.

167—American Potato Journal.

- a. MAI, W. F., 1951.—"*Solanum xanti* Gray and *Solanum integrifolium* Poir., new hosts of the golden nematode, *Heterodera rostochiensis* Wollenweber." 28 (4), 578-579.
- b. MAI, W. F., SPRUYT, F. J., LEAR, B. & FELDMESSER, J., 1951.—"Yields of Green Mountain and Cobbler potato varieties grown on golden nematode infested soil." 28 (6), 617-625.

(167a) Mai tests plants for susceptibility to *H. rostochiensis* by transplanting seedlings into 4-in. pots of heavily infested soil and, beginning when young female nematodes are just showing on the roots of potatoes grown under identical conditions, turning the ball of soil intact out of each pot and counting the young females on the exposed roots. [The method was described by Triffitt (1929) in J. Helminth., 7 (2), p. 83.] The ball is carefully returned to the pot and re-examined 4 times at weekly intervals. Ten plants of each variety are examined. By this method he found an average of 713 female *H. rostochiensis* on the roots of potato, 41 on tomato, 22 on *Solanum dulcamara*, 46 on *S. xanti*, a native of California, and 13 on *S. integrifolium*, which is grown as an ornamental in the U.S.A. The last two are new host records. M.T.F.

(167b) Mai and others find that under field conditions, the yield of Green Mountain and Cobbler potatoes was inversely related to the number of *Heterodera rostochiensis* cysts present in the soil. The tuber yields were also inversely related to the number of immature females on the roots. The effect of high infestations was greater on Green Mountain than on Cobbler varieties. D.W.F.

168—Anais Paulistas de Medicina e Cirurgia.

- a. COUTINHO, J. DE O., 1951.—"Notas sobre a epidemiologia da esquistossomose mansônica na Bahia." 61 (2), 144. [Discussion pp. 144, 146.]
- b. CAETANO DA SILVA, Jr., J. A., 1951.—"Cisticercose cerebral. Resultado obtido com o tratamento sulfamidico." 61 (2), 147. [Discussion p. 147.]

(168a) This is a summary of a report by Coutinho to the Department of Hygiene and Tropical Medicine of the São Paulo Medical Association. *Schistosoma mansoni* was found in 47% of the population of the city of Bahia (including a number of hospital cases and members of the Brazilian Air Force), and in 55% of the inhabitants of the interior of the State. The proportion of infection according to sex and colour was: men 56% and women 47%, whites 49%, mulattos 55% and negros 59%; the highest percentage of cases was between the ages of 31 and 40 years. The intermediate hosts at Bahia were *Australorbis glabratus* and *A. olivaceus*; the presence of *Tropicorbis centimetralis* at Itabuna was confirmed. The relative diagnostic values of rectal biopsy, and faeces examination by sedimentation are discussed. P.M.B.

(168b) [A fuller account of this paper appears in *Arq. Neuro-psiquiat.*, 9 (1), 43-47, for abstract see No. 178a below.]

169—Anales del Laboratorio Central. Cochabamba, Bolivia.

- a. TORRICO, R. A., 1951.—"Frecuencia de enterobiosis en algunas poblaciones de Bolivia." 3, 3-6.
- b. TORRICO, R. A., 1951.—"Parasitosis intestinales." 3, 20-23.
- c. CAMARGO L., H., 1951.—"Perforacion del estomago por *Ascaris lumbricoides*." 3, 39-42.

(169a) By using Graham's tape technique, Torrico found that in 672 children between six and fifteen years old, the incidence of *Enterobius vermicularis* varied in six different areas of Bolivia from 39.21% to 51.07%. A graph shows the incidence in children one to fifteen years old in Cochabamba. In boys this rose to over 75% at 14-15 years old and fell below 30% in girls between the ages of 12 and 13 years. R.T.L.

(169b) Examination of the faeces of 5,499 persons who attended hospitals and dispensaries in Cochabamba, Bolivia, gave the following helminth infections: *Trichuris* 14.057%, *Ascaris* 11.893%, hookworm 9.363%, *Strongyloides* 3.528%, *Taenia* sp. 0.109%, *Hymenolepis nana* 2.545% and *H. diminuta* 0.018%. R.T.L.

170—Annales Paediatrici.

- a. HANNA, M. & SHEHATA, A. H., 1951.—"Intravenous iron therapy in parasitic hypochromic anemia." 176 (2), 121-129. [French & German summaries pp. 128-129.]

(170a) In 35 cases of hypochromic anaemia due to hookworm disease, ascariasis and schistosomiasis in children in Cairo, there was a rapid rise in the haemoglobin level after a course of intravenous injections of organic trivalent iron, Ferronascin (Roche). Treatment was at the rate of 40 mg. daily in a single injection for 10-50 days. There were normally no side effects. Far less rapid improvement occurred in 15 cases treated with 3 gm. of iron ammonium citrate given orally for 10-40 days. P.M.B.

171—Annales de la Société Belge de Médecine Tropicale.

- a. SCHWETZ, J., 1951.—"Recherches sur la bilharziose dans l'agglomération d'Elisabethville." 31 (1), 71-92. [Flemish summary pp. 87-88.]
- b. SCHWETZ, J., 1951.—"Note préliminaire sur la bilharziose à Sakania (Katanga, Congo belge)." 31 (1), 93-102. [Flemish summary p. 102.]
- c. SCHWETZ, J., 1951.—"Sur la bilharziose à la Mission et à l'école professionnelle des Salésiens de la Kafubu." 31 (1), 103-109. [Flemish summary p. 109.]
- d. FAIN, A., 1951.—"Notes écologiques et parasitologiques sur *Limnaea (Galba) truncatula* Müller au Congo belge." 31 (2), 149-152. [Flemish summary p. 152.]
- e. LAGRANGE, E., 1951.—"A propos de la prophylaxie de la bilharziose." 31 (2), 179-192. [English & Flemish summaries pp. 190-191.]
- f. LAGRANGE, E. & SCHEECQMANS, G., 1951.—"La pratique de la bilharziose expérimentale." 31 (2), 193-206. [Flemish summary p. 206.]
- g. BOGAERT, W., 1951.—"Quelques considérations au sujet de l'ascaridiose. A propos d'un cas de perforation intestinale par ascaris." 31 (2), 303-306. [Flemish summary pp. 305-306.]

(171a) Schwetz reports that in 1950 a number of schoolchildren in Elisabethville (Belgian Congo) became infected with *Schistosoma mansoni* after bathing in the swimming pool. Planorbis and Physopsis are common in all the water in the area, particularly in artificial reservoirs, canals etc. Infected planorbids were found round Elisabethville and at Keyberg. Neither the percentage of the population infected nor the intensity of infection is known, but of two groups of natives examined 30%-40% were infected, but not heavily. S.W.

(171b) Schwetz reviews the previous surveys of schistosomiasis in Sakania (Belgian Congo). This is an old focus, predominantly of schistosomiasis haematobia, but no reports on the situation have been published since 1939. Sakania is at the source of a small river which is the only water supply, and although this has a high population of Planorbis and Physopsis, Schwetz is of the opinion that the disease can be controlled by treating the population and by a campaign against the snails. S.W.

(171c) The Mission and the school at Kafubu (Belgian Congo) were first reported as a focus of both schistosomiasis haematobia and schistosomiasis mansoni in 1931. In 1950, Schwetz found that of 112 patients examined for schistosomiasis mansoni, 22.32% were infected, and of 41 examined for schistosomiasis haematobia, 30% were infected. *Planorbis pfeifferi* and *Physopsis africana* were the only two species of snails found to be infected in the streams and irrigation channels round the Mission. S.W.

(171d) Fain records for the first time the presence of *Limnaea truncatula* in the Belgian Congo. Specimens collected from nine rivers were found to be infected with paramphistome cercariae and xiphidiocercariae but not with those of *Fasciola gigantica*. *Limnaea natalensis undussumae* appears to be the intermediate host of *F. gigantica* but a further account of this is to be published shortly. S.W.

(171e) Lagrange reviews the literature on molluscicides. He describes his own

experiments on the use of Cetavlon and Zephriol (both quarternary ammonium compounds) which are highly toxic to snails and cercariae at a concentration of 10^{-5} but also kill fish, and on ultrasonic waves which kill miracidia, cercariae and snails but have less effect on fishes and frogs. He finds that metallic copper has an oligodynamic action which is specific for pulmonate snails but affects neither cercariae nor fish. s.w.

(171f) Lagrange & Scheecqmans have studied experimentally *Schistosoma mansoni* in mice, guinea-pigs, cotton-rats and albino rats; they consider mice to be the most satisfactory experimental hosts especially for chemotherapeutic work. They describe in detail all the techniques used in maintaining and infecting snails (*Planorbis glabratus*) and definitive hosts, and in the collection of adult worms. Cercariae were emitted from the snails up to three months after exposure to miracidia. In mice the first sign of infection was the appearance of pigment in the liver and spleen, followed by the presence of young schistosomes (sexually undifferentiated) in the parenchyma of the liver. Eggs normally appeared in the faeces between 42 and 54 days after infection, and disappeared 15-25 days after treatment with miracil-D; treatment did not cause the disappearance of pigment from the liver or spleen, even after 2½ months. The spleen was often enlarged and sometimes contained eggs. In one experiment eggs and adult worms were recovered from the lungs. s.w.

(171g) Bogaert reports that the incidence of ascariasis in the native population in Ruhengeri, Ruanda, is 100%. In young children it frequently gives rise to symptoms of dysentery and may cause death. He also describes a fatal case of intestinal perforation by ascaris. s.w.

172—Annals of Applied Biology.

- a. JONES, F. G. W., 1951.—"The Sugar Beet Eelworm Order 1943." 38 (2), 535-537.
- b. FENWICK, D. W., 1951.—"The effect of temperature on the development of the potato-root eelworm, *Heterodera rostochiensis*." 38 (3), 615-617.
- c. GOODEY, J. B., 1951.—"Observations on the attack by the stem eelworm, *Ditylenchus dipsaci*, on strawberries." 38 (3), 618-623.

(172a) Jones briefly outlines the various considerations and negotiations which led to the issue of the Sugar Beet Eelworm Order in 1943. In 1938 the known infected fields in England numbered 96. By 1943 this had risen to 556 and in 1950 the number was little short of 1,000. Difficulties were encountered in applying the Order owing to variations in enforcement and interpretation and in changes in personnel following the dissolution of the old Advisory Service and the creation of the National Agricultural Advisory Service. Technical difficulties in administration arose from strip cultivation, the range of crop plants susceptible to the infection and from the human factors which restricted the use of legislation as a big stick for the more awkward individuals. Fines were small compared to the profits made. It is probable that all the important beet growing areas in England will have become extensively infected by about 1980 unless more direct measures of control can be discovered and applied. R.T.L.

(172b) Fenwick describes experiments on the effect of temperature on the development of *Heterodera rostochiensis*. Temperatures above 20°C. slightly reduce penetration of larvae into the potato root and greatly restrict their development in plant tissues. The temperature range of this parasite is compared with that of *H. marioni* and a possible relationship to their geographical distribution is described. D.W.F.

(172c) Four biologic races of *Ditylenchus dipsaci* can cause stem eelworm disease on 12 varieties of strawberry. The course of attack, host reaction and ways in which the disease originates and is disseminated are described. J.B.G.

173—Annals of Tropical Medicine and Parasitology.

- a. SCHWETZ, J., 1951.—“A comparative morphological and biological study of *Schistosoma haematobium*, *S. bovis*, *S. intercalatum* Fisher, 1934, *S. mansoni* and *S. rodhaini* Brumpt, 1931.” 45 (2), 92-98.
- b. DAVEY, J. T. & O'ROURKE, F. J., 1951.—“Observations on *Chrysops silacea* and *C. dimidiata* at Benin, Southern Nigeria. Part III.” 45 (2), 101-109.
- c. WARDLE, R. A., 1951.—“The distribution of tapeworms in the Pacific area and the conclusions to be drawn therefrom.” 45 (2), 122-126.
- d. MARKS, E. N., 1951.—“The vector of filariasis in Polynesia: a change in nomenclature.” 45 (2), 137-140.

(173a) Schwetz deals with certain aspects of the morphology and biology of the schistosome species (*Schistosoma haematobium*, *S. bovis*, *S. intercalatum*, *S. mansoni* and *S. rodhaini*) which he had recovered from white mice that had been exposed to cercariae from fresh-water molluscs in the Belgian Congo and Uganda. He subdivides these schistosome species into two groups according to certain morphological characters. *S. mansoni* and *S. rodhaini* are allocated to Group 1 which is characterized by “Female: genitalia (ovary and oviduct) in the anterior half of the body; usually only one mature egg in the uterus; eggs with a lateral spine. Male: eight or nine testes.” *S. haematobium*, *S. bovis* and *S. intercalatum* constitute Group 2 with the following characters “Female: genitalia in the posterior half of the body; usually numerous eggs in the uterus; eggs with a terminal spine. Male: four to six testes.” The species within a group are differentiated by the shape and size of their eggs. Several figures illustrate the types of eggs obtained from the different species and the variations in the shape of the eggs within a species. He could not differentiate between the eggs of *S. intercalatum* and *S. matthei* and suggests that the former may be the latter adapted to man. The eggs of *S. rodhaini* from white mice and from naturally acquired infections in species of wild rodents (*Lophuromys*, *Praomys*, *Pelomys* and *Thamnomys*) are furnished either with a terminal or a subterminal spine while the anterior pole of the egg “may either be rounded off or shaped like an appendix”. The author states that *S. rodhaini* provoked a very acute form of schistosomiasis in white mice.

P.L.ler.

(173b) Davey & O'Rourke give an account of the habits of the immature stages of *Chrysops silacea* and *C. dimidiata* and the factors which limit their breeding sites. Methods of control will probably only be successful if directed against the larval stages as their habitats are well defined and easily recognizable. Drainage and flooding of swamps are natural controls. Screening against the adult flies is effective to a limited extent. Dimethyl-phthalate diluted or in 60% strength gives protection against bites for a minimum of two or three hours.

R.T.L.

(173c) From a study of the distribution of tapeworms in the Pacific area, Wardle considers that (i) certain Proteocephala probably date back no earlier than the mid-tertiary period and that this order may be diphyletic; (ii) *Prototaenia* may be close to the base of the cyclophyllidean stem and (iii) the relative absence of nonfossate and difossate forms from Australasia supports the view that they are the most recent of tapeworms and represent a polyphyletic assemblage of neotenic larval forms derived from tetra-fossate tapeworms which became extinct or have disappeared with the extinction of their definitive hosts. R.T.L.

(173d) The mosquito which has been generally recognized as the vector of filariasis in Fiji, Samoa, the Ellice Islands, the Tokelau Islands and the islands of south-eastern Polynesia as far east as the Marquesas and Mangareva Islands, is now identified as *Aedes polynesiensis* n.sp. not *A. pseudoscutellaris*.

R.T.L.

174—Antiseptic. Madras.

- a. ZAINI, K. R., 1951.—“An interesting case of ascariasis resembling enteric.” 48 (4), 304-305.

175—Archiv für Hydrobiologie.

- a. CASPERS, H., 1951.—"Quantitative Untersuchungen über die Bodentierwelt des Schwarzen Meeres im bulgarischen Küstenbereich. (Untersuchungen über die bulgarische Küstentierwelt 1.)" 45 (1/2), 1-192.
- b. GERLACH, S. A., 1951.—"Freilebende Nematoden aus Varna an der bulgarischen Küste des Schwarzen Meeres." 45 (1/2), 193-212.
- c. MAHLER, F., 1951.—"Wie gelangt *Gordius* in den Leib der Heuschrecken?" 45 (3), 393-394.

(175a) Caspers includes a list of 23 species of free-living nematodes collected by him near Varna on the Black Sea. They were identified by Gerlach [see following abstract]. R.T.L.

(175b) Gerlach gives systematic descriptions of the free-living nematodes collected by Caspers on the Bulgarian coast. There were 23 species of which two are new, viz., *Syringolaimus caspersi* n.sp. and *Dorylaimus filippevi* n.sp. R.T.L.

(175c) In an unsuccessful attempt to explain the presence of larvae of *Gordius* sp. encysted in the body-cavity of grasshoppers which are exclusively plant-eating, Mahler considers it unlikely that they are ingested directly from aquatic plants; no Gordiids were present in exclusively plant-eating snails (e.g. Succineidae) whereas in non-vegetarian species (e.g. Vitrinidae) they were numerous. A further question raised is whether the Gordiid excysts and continues to develop if the grasshopper host is eaten by a bird or mammal, or is digested. P.M.B.

176—Archives de l'Institut Pasteur du Maroc.

- a. JOYEUX, C., BAER, J. G. & GAUD, J., 1951.—"Recherches helminthologiques marocaines. Cestodes (deuxième note)." 4 (3), 93-102.
- b. DOLLFUS, R. P., 1951.—"Miscellanea helminthologica maroccana. I. Quelques trématodes, cestodes et acanthocéphales." 4 (3), 104-229.
- c. DOLLFUS, R. P. & CHABAUD, A. G., 1951.—"Miscellanea helminthologica maroccana. II. Cystique polycéphale chez un *Meriones shawi* (G. L. Duvernoy in C. A. Rozet 1833)." 4 (3), 230-235.
- d. CHABAUD, A. G., 1951.—"Miscellanea helminthologica maroccana. III. Observation sur *Aprocta noctuae* Spaul 1927 (Nematoda—Aproctidae)." 4 (3), 236-243.
- e. JOYEUX, C. & BAER, J. G., 1951.—"Recherches helminthologiques marocaines." [4e partie.] 4 (4), 304-313.

(176a) A more complete description is now given of *Catenotaenia oranensis* from the rodent *Meriones shawi*. Of the 11 species found in birds *Hymenolepis garruli* n.sp. from *Coracias garrulus* is probably identical with Meggitt's *Hymenolepis* sp. from the same host. It differs from *H. parvirostellata* as it has 12 hooks of 27 μ to 31 μ in length, whereas the latter has only 8 hooks, 13 μ in length and belongs to the subgenus *Drepanido-taenia*. *Taenia coraciae* Rud. also from the same host is considered to be *nomen nudum*. *Paruterina purpurata* in *Lanius senator* and *Hymenolepis serpentulus* in *Sylvia atricapilla* and *Hirundo rustica* are new records for these hosts. R.T.L.

(176b) Dollfus records 36 helminth species collected mostly during his zoological missions in Morocco. Of the 21 trematodes mentioned, seven are new species, viz., *Ochetosoma* (*Pseudochetosoma*) *salmonicola* n.subg., n.sp. from *Salmo macrostigma* [but a note is inserted stating that the generic diagnosis is incorrect and that a new description will appear later]; *Sonsinotrema calloti* n.sp. from *Rana ridibunda*; *Pseudosonsinotrema chamaeleonis* n.g., n.sp. from *Chamaeleon chamaeleon*; *Brachylecithum aetechini* n.sp. from *Erinaceus* (*Aetechinus*) *algeris*; *Mesocoelium maroccanum* n.sp. from *Chalcides ocellatus*; *Aporchis liouvillei* n.sp. from *Larus argentatus*; *Echinoparyphium baculoides* n.sp. from a sea bird, possibly *Chlidonias leucopterus*. There is a key to the genera of Pleurogeninae parasitic in batrachians and chameleons of Europe and North Africa. In this subfamily two new genera are incorporated, *Pseudosonsinotrema* n.g. which differs from *Sonsinotrema* in having a well developed metraterm and *Candidotrema* n.g. for *Pleurogenes*

loossi from *Rana esculenta*. Eleven cestodes were found including *Hymenolepis* (*Weinlandia*) *hoploporus* n.sp. in *Podiceps cristatus*. Among four acanthocephalans were *Centrorhynchus undulatus* n.sp. in *Circaetus gallicus* and *Acanthosentis maroccanus* n.sp. in *Barbus setivimensis*. A table sets out the lengths, the number of hooks, and the positions of the proximal end of the cirrus pouch in relation to the breadth of the proglottid for the species of *Hymenolepis* which occur in grebes and divers. The known Acanthocephala of the Erinaceidae are enumerated.

R.T.L.

(176c) A polycephalous cyst showing endogenous proliferation with 27 diverticula was found in the thoracic cavity of *Meriones shawi* in Morocco. Each scolex carried two crowns of 32 hooks each, the large hooks were 340–344 μ long, the small hooks 212–218 μ . Attention is drawn to confusion due to misquotation of the original description of cysts cited by a number of authors, and it is considered probable that the cyst belongs to the same species as that described from *Lynx canadensis* and named *Taenia rileyi*.

R.T.L.

(176d) *Aprocta noctuae* collected from *Athene noctua* in Morocco is figured and redescribed in detail. The male characters resemble those of *Aprocta proctata* but the female is amphidelphic. This latter feature is not regarded as of sufficient importance to exclude *A. noctuae* from the genus *Aprocta*.

R.T.L.

(176e) The land snail *Euparypha pisana* is the principal vector of the lungworm *Cystocaulus ocreatus* which is very common in sheep and goats in the south-eastern region and uplands of Morocco; 33.33% of the snails in the vicinity of Casablanca are infected. The patchy geographical distribution of the disease is associated by the authors with poor pasturage as they could only induce infection experimentally in under-nourished animals.

R.T.L.

177—Archivio Italiano di Scienze Mediche Tropicali e di Parassitologia.

- a. D'IGNAZIO, C., 1951.—"Tenifughi e teniasi in Etiopia. (Kosso contro kosso)." 32 (2), 95–104. [English, French & German summaries p. 104.]
- b. D'IGNAZIO, C., 1951.—"Terapia indigena di alcune elmintiasi in Etiopia." 32 (2), 158–162. [English, French & German summaries pp. 161–162.]
- c. BOCCHETTI, G., 1951.—"La diagnosi biologica dell'echinococcosi." 32 (3), 165–176. [English, French & German summaries pp. 174–175.]

(177a) D'Ignazio describes native remedies for tapeworms in Abyssinia where *Taenia saginata* is particularly common. He gives details of the preparation, toxic effects and approximate dosage of anthelmintics made from the following plants: *Hagenia abyssinica* or "kosso", *Embelia schimperi* or "ncocco", *Myrsine africana* or "cocciamo", *Punica granatum* or "roman" (pomegranate), *Cucurbita maxima* and *C. pepo* or "dubba" (pumpkin) and also benzine. He recommends further study of the active principles of these remedies.

P.M.B.

(177b) D'Ignazio gives notes on the following medicinal plants and on their use by the Abyssinian hill tribes as remedies against *Ascaris* and *Enterobius* which, with tapeworm, are the only helminths which they recognize: *Albizia anthelmintica*, *Allium sativum*, *Phitolacca* spp., *Nicotina rustica*, *Prunus persica* and *P. domestica*, *Vicia faba* and *Carica papaya*. Parasitism is much higher among the hill tribes than among the lowland population.

P.M.B.

(177c) The Casoni reaction proved of considerably greater practical value than other biological tests for the diagnosis of hydatid in about 350 cases seen by Bocchetti in Rome during the past ten years but the Ghedini-Weinberg reaction was more specific, although slower.

R.T.L.

178—Arquivos de Neuro-Psiquiatria. São Paulo.

- a. CAETANO DA SILVA, Jr., J. A., 1951.—“Cisticercose cerebral. Resultados obtidos com tratamento sulfamidico.” 9 (1), 43-47. [English summary pp. 46-47.]
- b. CANELAS, H. M., AIDAR, O. & PIMENTA DE CAMPOS, E., 1951.—“Esquistossomose com lesões meningo-radiculo-medulares.” 9 (1), 48-55. [English summary p. 55.]

(178a) Caetano da Silva reports a marked improvement in the clinical condition and a decrease in the abnormalities in the cerebro-spinal fluid in a Brazilian case of cerebral cysticerciasis after treatment with sulphadiazine. The dosage given was 4 gm. daily for 25 days, repeated during a similar period after an interval of 5 days. P.M.B.

(178b) This is a report of a case from Pernambuco, Brazil, with a history suggestive of schistosomiasis. Eggs of *Schistosoma mansoni* were found in the faeces. Intradermal and complement fixation tests were positive. There was general weakness, absence of deep reflexes and hypotonus. The assumption was that these symptoms were due to infection of the spinal cord, but although at post-mortem examination pathological changes were present in the tissues, no eggs were found. R.T.L.

179—Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano.

- a. GIORDANI SOIKA, A., 1951.—“Studi sulle olocenosi—VIII. Associazione a *Fabricia sabella*, *Metaparoncholaimus campylocercus* e *Paranaïs elongata* nella zona intercotidale dei canali interni della città di Venezia.” 90 (1), 38-42.

(179a) Soika briefly mentions as of great interest the association of two free-living nematodes, *Metaparoncholaimus campylocercus* and *Prochromadorella neapolitana* with the polychaete *Fabricia sabella* in the canals in Venice. R.T.L.

180—Australian Journal of Science.

- a. BOLLIGER, A., 1951.—“Sheathed microfilaria in the common phalanger (*Trichosurus vulpecula*).” [Correspondence.] 14 (1), 22-23.

(180a) Microfilariae were present in considerable numbers in the blood of 11 out of 54 *Trichosurus vulpecula* captured near Moss Vale, N.S.W. They were sheathed and similar to those of *Wuchereria bancrofti* but smaller, measuring 165 μ to 200 μ when stained and 250 μ to 300 μ when fresh. There was no periodicity. The adults were not found. R.T.L.

181—Australian Journal of Scientific Research. Series B, Biological Sciences.

- a. LAZARUS, M. & ROGERS, W. P., 1951.—“The mode of action of phenothiazine as an anthelmintic. The uptake of ³⁵S-labelled phenothiazine by the tissues of nematode parasites and their hosts.” 4 (2), 163-179.

(181a) A preliminary account of this work has been published previously in *Nature*, 166, p. 647 [for abstract see Helm. Abs., 19, No. 215b]. In a more detailed discussion of the results, Lazarus & Rogers suggest that phenothiazine enters nematode parasites through the cuticle. The relatively small uptake by host animals as compared with their parasites may account for the differential toxicity to host and parasite. A tentative hypothesis is advanced that failure of phenothiazine to “poison” *Nippostrongylus muris* may be due to the fact that these parasites are not dependent on energy from anaerobic sources. W.P.R.

182—Australian Museum Magazine.

- a. BEARUP, A. J., 1951.—“Meet the flatworms.” 10 (6), 174-179.

183—Australian and New Zealand Journal of Surgery.

- a. FITZPATRICK, S. C., 1951.—“Sequelae of treatment of hydatid cysts of the lung.” 20 (4), 278-284.

(183a) From personal experience of 80 cases of pulmonary hydatid, Fitzpatrick

classifies the main sequelae after operation as (i) anaphylactic shock, (ii) abscess, persistent cavity and chronic empyema, (iii) recurrence of daughter cysts and (iv) fibrosis and bronchiectasis. The mortality was 4%. Suggestions are offered for their prevention and treatment. R.T.L.

184—Australian Veterinary Journal.

- a. RIEK, R. F., 1951.—“The use of phenothiazine against the nematode parasites of cattle with particular reference to the hookworm, *Bunostomum phlebotomum* (Railliet, 1900) Railliet, 1902.” 27 (8), 197–202.
- b. WHITLOCK, H. V., 1951.—“An oesophageal tube for drenching sheep with phenothiazine.” 27 (8), 206–207.
- c. HART, B., 1951.—“Recovery of the nematode *Ascaris vitulorum* Goeze 1782 from the faeces of a calf.” 27 (8), 208.
- d. WHITTEN, L. K., 1951.—“*Ascaris vitulorum* in cattle.” [Correspondence.] 27 (8), 212.
- e. BULL, L. B., 1951.—“The study of etiology and control of sheep diseases in Australia during the half-century, 1900–1950.” 27 (9), 237–245.

(184a) Riek has tested phenothiazine in dose rates of 0.1 gm., 0.2 gm. and 0.3 gm. per lb. body-weight, against nematodes in 77 calves, five to fourteen months old. The drug was given in an aqueous suspension either by means of a drenching gun or directly into the rumen by means of a flank puncture; in four cases it was administered straight into the abomasum. The efficacy of treatment was judged by faecal egg-counts. At 0.1 gm. per lb. body-weight phenothiazine was effective only against *Haemonchus contortus* and *Bosicola radiatum*; at 0.2 gm. and 0.3 gm. it was more effective against these two species and *Trichostrongylus*, only slightly active against *Bunostomum phlebotomum* and *Cooperia* spp., and inactive against *Ostertagia*. Temporary, and in one case permanent, blindness and other toxic symptoms resulted from the two higher dose rates; 0.2 gm. per lb. body-weight seems to be the maximum dose which can be safely administered. S.W.

(184b) Whitlock describes and illustrates an oesophageal tube for use with drenching guns for the administration of phenothiazine suspensions to sheep. The tube is made of flexible metal tubing covered with hard rubber with a soft rubber protective tip and valve. It is claimed that its use eliminates wastage of phenothiazine, choking and damage to the pharynx, and facilitates administration. S.W.

(184c) Hart reports that about 20 mature *Ascaris vitulorum* were recovered from a calf after dosing with chenopodium oil. The number of eggs per gramme of faeces only dropped slightly after treatment, from 3,900 e.p.g. to 3,630 e.p.g. This is the first record of the recovery of adult *A. vitulorum* in Australia, although Keith has previously reported finding ova [for abstract see Helm. Abs., 20, No. 74a]. S.W.

(184d) Whitten records that in 1940 a single female ascarid was recovered from a calf in the Armidale district of Australia. He now concludes, from the position of the vulva, that this was a specimen of *Ascaris vitulorum*. S.W.

185—Berliner und Münchener Tierärztliche Wochenschrift.

- a. JACOB, E., 1951.—“Parasitologische Notizen. 24. Zum Vorkommen des Iltis-Magenhaarwurmes bei Katzen.” Year 1951, No. 10, p. 205.
- b. SCHMIDT-TREPTOW, W. A., 1951.—“Gammaverm-Serag als Anthelminticum in der Hundep Praxis.” Year 1951, No. 11, pp. 221–222.

(185a) Jacob confirms Wagner's view that *Capillaria putorii*, a parasite of the polecat, also occurs in domestic cats in Germany. Infections which, with one exception, were apparently non-pathogenic occurred in six cats in widely separated rural areas of Oldenburg and Hanover States. It is concluded that infection is more common in domestic cats where polecats are present in the vicinity. P.M.B.

(185b) Schmidt-Treptow has tested the efficacy of “Gammaverm”, containing arecolin hydrobromide and gammexane, against *Taenia* and ascarid infections in dogs. The preparation is marketed in gelatin capsules each containing 50 mg. gammexane and

10 mg. arecolin hydrobromide. The dose is one capsule per 5 kg. body-weight which may be repeated after an interval of eight days. Of 30 dogs infected with *Taenia* and 15 with ascarid infections, 25 and 13 respectively were cured by a single dose: the remainder were free from infection after a second treatment. Two dogs with mixed infections were both cured by a single dose. Vomiting occurred in five of the dogs within 15 minutes of treatment and in one dog there was transitory disturbance of appetite; there were no other side effects. The author concludes that "Gammayerm" is an efficient anthelmintic against canine helminths.

A.E.F.

186—*Biológico. São Paulo.*

- a. MELLO, M. J., 1951.—"As verminoses do cão (continuação)." 17 (1), 4-13.

(186a) Mello continues his work on the helminths of dogs in the State of São Paulo, Brazil. He describes the life-cycle, mode of infection, treatment and prophylaxis of the following: *Diocotophyme renale*, *Spirocerca sanguinolenta*, *Dipylidium caninum*, *Taenia hydatigena*, *T. multiceps* and *Echinococcus granulosus*.

P.M.B.

187—*Boletín de Informaciones Parasitarias Chilenas.*

- a. NEGhme, A. & SILVA, R., 1951.—"Nueva contribución al estudio epidemiológico de la amebiasis y otras enteroparasitosis en Chile." 6 (2), 21-23. [English summary p. 23.]
 b. FAIGUENBAUM, J., 1951.—"Requisitos para recoger en buenas condiciones una muestra coprológica para examen parasitológico." 6 (2), 27-28.
 c. ANON., 1951.—"Campanas antiparasitarias en Chile." 6 (2), 28-29.

(187a) In the dry north of Chile *Ascaris lumbricoides* and *Trichuris trichiura* are very uncommon, the former ranging from 1% to 8%, whereas in the central part its incidence is from 18% to 46% and in the southern zones from 21% to 65%. *Hymenolepis nana* is the most common tapeworm in Chile and is more common in the northern and central parts than in the south. The incidence ranges from 1% to 15%. It is more frequently found in children than in adults.

R.T.L.

(187b) Faiguenbaum gives the following points to serve as a guide in obtaining a faecal sample suitable for microscopic examination: the sample should be examined on the day during which it is passed, it should not be mixed with urine and where a purgative is used this should be saline and not oil, as the latter tends to make microscopic examination difficult; no anthelmintic should be administered beforehand as this might cause a negative result from an infected person.

P.M.B.

(187c) Reference is made to plans for the control of hydatid disease, due to be put into operation in southern Chile in the Spring of 1952; the first phase of the campaign in Tierra del Fuego was completed in April, 1951. Eleven cases of trichinosis were reported and nine confirmed. Of 63 samples of dried meat from Santiago, Linares, Chillán and Bio-Bio which were examined for trichinae, all except one from Chillán were negative.

P.M.B.

188—*Boletín Informativo. Ministerio de Ganadería y Agricultura, Uruguay.*

- a. POU, M. C. & RODRÍGUEZ GONZÁLEZ, M., 1951.—"*Echinococcus granulosus* en los perros campesinos." 8 (370), 5.

(188a) Faecal examination of 35 dogs in the districts of Soriano, Rocha, Tucuarembó, Cerro Largo and San José in Uruguay showed that 14 (40%) were infected with *Echinococcus granulosus*.

P.M.B.

189—*British Medical Journal.*

- a. SMYTH, M., 1951.—"Ascaris in common bile duct." [Correspondence.] Year 1951, 2 (4731), 609.

(189a) Referring to Altounyan's case of *Ascaris lumbricoides* impacted in the common bile duct [Brit. med. J., Year 1951, 2 (4727), 338-339], Smyth cites two reports of similar cases in the British Journal of Surgery for 1923.

R.T.L.

190—British Veterinary Journal.

- a. INNES, J. R. M., 1951.—“Necrotising encephalomyelitis (or encephalomyelomalacia) of unknown aetiology in goats in Ceylon with similarities to setariosis of sheep, horses, and goats in Japan. (Including a brief review of nervous diseases of goats.)” 107 (5), 187–203.
- b. SOLIMAN, K. N., 1951.—“Observations on the orientation of certain lungworms in the respiratory tracts and on their feeding habits.” 107 (6), 274–278.

(190a) Innes reviews the literature on nervous diseases of goats with particular reference to a condition termed “lumbar paralysis”, which has been known for many years in Ceylon among goats imported from India, and in crosses between these and local goats. The cause is unknown. The lesions which are described affect principally the white matter of the brain stem and are small and difficult to find. In an addendum to his paper, Innes draws particular attention to investigations in Japan which indicate that *Setaria digitata* may be the causal agent of a similar disease in Japan. Although re-examination of material from Ceylon has so far failed to reveal the presence of these parasites, serious attention should be paid to the Japanese claims. It is suggested that this may also possibly be the cause of certain undiagnosed paralytic conditions occurring in domestic and wild animals and even in man in various parts of the world.

P.M.B.

(190b) The lungworms *Dictyocaulus viviparus*, *D. filaria* and *Metastrongylus apri* in the respiratory tract normally lie with their heads towards the bronchioles and their tails in the direction of the trachea. Except in heavy infections they occur in the bronchioles. Evidence is presented which indicates that these worms ingest the inflammatory exudate and do not feed on the blood. In some outbreaks of husk, seen in its earliest stages, most of the parasites were in the terminal branches of the bronchi and were so small that it was difficult to detect them with the naked eye.

R.T.L.

191—Bulletin de l'Académie des Sciences de l'URSS. Série Biologique.

- a. VINNITSKI, I. M., 1951.—[Peculiarities of inflammatory reactions in carnivores after the introduction of foreign tissues and helminths into the body-cavity.] Year 1951, No. 1, pp. 56–80. [In Russian.]

(191a) In this extensive essay on the reactions in carnivores after the introduction of foreign tissues (muscle, heart) and helminths into the body-cavity Vinnitski, in the sections relating to helminths, reviews his previous work and comes to the conclusion that the carnivores defend themselves from nematodes introduced into the peritoneal cavity and prevent encapsulation. This is caused by aetiological factors which change the general reaction of the host and by phylogenetic factors, e.g. specific characters of the physiology of the connective tissue. The author sees in these results the adaptation of the parasite to the host. When ascarids are introduced into the body-cavity of guinea-pigs they become encapsulated. There is also phagocytosis and fermentation of microphages and macrophages inside the capsule. These processes are similar to those resulting from the introduction of bits of muscle or heart into the body-cavity of the cat.

C.R.

192—Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris.

- a. BROUET, G., MARCHE, J. & LEPRAT, J., 1951.—“Epidémie familiale de distomatose à *Fasciola hepatica* traitée par l'antimoniate de N-méthyl-glucamine.” 4e Série, 67 (1/2), 33–38.

(192a) Brouet *et al.* report three cases of fascioliasis hepatica in man in France, which they treated with N-methyl-glucamine antimoniate. Dosage was about 0.08 gm. per kg. body-weight daily, to a total of 48 gm. and 63 gm. Toxic symptoms occurring after ten days made it impossible to carry on with this treatment, which was not successful; a further course of treatment with emetine proved to be more satisfactory.

S.W.

193—Bulletin of the National Research Council. Washington.

- a. SCHILLER, E. L., 1951.—“Observations on Arctic parasitology with special reference to the study of echinococcosis and diphyllbothriasis in Alaska.” No. 122, pp. 91–92.

- b. RAUSCH, R., 1951.—"Biotic interrelationships of helminth parasitism in Alaska." No. 122, pp. 113-114.

(193a) Schiller reported that helminth parasitism in Alaska, as shown by 4,000 post-mortem examinations of wild and domestic animals, is widespread and in native populations presents a serious problem. *Diphyllbothrium* spp. occur in man in several villages in the Kuskokwim river area, and in various mammals and fish-eating birds. Experiments on the treatment and control of diphyllbothriasis are in progress. He also gave a brief account of the work on hydatidosis carried out on St. Lawrence Island in 1950 and previously reported elsewhere [for abstract see Helm. Abs. 19, No. 337bx]. S.W.

(193b) Rausch found cestodes to be the most common helminth parasites in Alaska, trematodes to be relatively rare and certain nematodes to be absent or scarce. *Paranoplocephala omphalodes*, *Hymenolepis horrida* and *Heligmosomum costellatum*, previously recorded only from Europe and Asia, have been found in Alaskan mammals. There was no increase in parasitism in lemmings at periods of high population density. Trichinellosis was common in land carnivores. Experimental work indicated that only one species of *Diphyllbothrium* occurred. S.W.

194—Bulletin de la Société Nationale d'Horticulture de France.

- a. RITTER, M., 1951.—"Les nématodes parasites des plantes horticoles." 7e Série, 6, 167-173.

(194a) In this semi-popular communication Ritter sets out the chief morphological features of the three principal subfamilies of plant parasitic eelworms, i.e. Tylenchinae, Heteroderinae and Aphelenchinae. He then deals with the most important nematode infections of horticultural crops including those affecting stems, bulbs and leaves, followed by those affecting roots. A section of the paper is devoted to methods of control including the use of the warm water bath for eelworm infested bulbs etc. and methyl bromide for seed disinfection. Soil fumigation for the control of root-infesting nematodes is also dealt with. T.G.

195—Bulletin de la Société de Pathologie Exotique.

- a. LANGUILLON, J., 1951.—"Étiologie du syndrome dysentérique à la Guadeloupe." 44 (7/8), 430-433.
 b. CORCOS, A., DELASTRE, R., CHELLY, M. & ABITBOL, S., 1951.—"Sur un cas de péritonite par perforation ascaridienne de l'intestin." 44 (7/8), 433-435.
 c. MONTEL, L. R., 1951.—"Un cas de larva migrans provenant du Brésil." 44 (7/8), 436-437. [Discussion p. 438.]
 d. DEJOU, L. & CAMAIN, R., 1951.—"Localisation péritonéale d'un ver de Guinée avec syndrome ulcéreux gastrique." 44 (7/8), 438-440.

(195a) Of 7,600 stools examined in Guadeloupe during 1949 and 1950, *Schistosoma mansoni* eggs were obtained from 532 (7%), and in 105 dysenteric or dysenteriform stools on six occasions (5.7%). R.T.L.

(195c) A case of larva migrans in a patient from Brazil is described and illustrated. Although a larval *Ancylostoma braziliense* was probably the causal agent it was not recovered. R.T.L.

196—Bulletin of Zoological Nomenclature.

- a. DOUGHERTY, E. C., 1951.—"On the question of the correct name for the type species of the genus '*Stephanurus*' Diesing, 1839 (Class Nematoda, Order Rhabditida), with recommendations for the placing of certain names on the 'Official Lists'." 2 (9/10), 282-291.
 b. HEMMING, F., 1951.—"On the question of the desirability of retaining the trivial name '*dentatus*' Diesing, 1839 (as published in the binominal combination '*Stephanurus dentatus*') as the trivial name of the kidney worm of swine (Class Nematoda, Order Rhabditida): an appeal to parasitologists for views on the question raised by Dr. Ellsworth C. Dougherty." 2 (9/10), 291-293.

- c. HEMMING, F., 1951.—“On the question whether it is desirable that the name ‘*Anguina*’ Scopoli, 1777 (Class Nematoda) should be placed on the ‘Official List of Generic Names in Zoology’ in preference to such names as ‘*Anguillulina*’ Gervais & Beneden, 1859, or ‘*Tylenchus*’ Bastian, 1865 (a case possibly involving the use of the plenary powers): appeal to specialists for advice.” 6 (4), 125-128.

(196a) After reviewing the history of the nomenclature of the kidney-worm named *Stephanurus dentatus* by Diesing in 1839, Dougherty recommends to the International Commission that *Stephanurus* Diesing, 1839 should be placed on the “Official List of Generic Names in Zoology” and that *pinguicola* be placed on the “Official List of Specific Trivial Names in Zoology”. He makes the new combination *Stephanurus pinguicola* (Verrill, 1870). R.T.L.

(196b) Dougherty has pointed out that *dentatus* Diesing, 1839 in the combination *Stephanurus dentatus* must be rejected as it is a junior secondary homonym of *dentatus* Rudolphi, 1803 in the combination *Strongylus dentatus*, the two species having been subsequently placed by certain authors in the same genus. Parasitologists are asked for their opinion on the desirability of validating the name *dentatus* Diesing, 1839 for the kidney worm of pigs, by the use of the plenary powers by the International Commission on Zoological Nomenclature. R.T.L.

(196c) As the International Congress of Zoology held in Paris in 1948 substituted the expression “binominal” for “binary” in article 25 of the International Rules of Zoological Nomenclature, specialists are asked to inform the International Commission on Zoological Nomenclature whether they are of the opinion that the name *Anguina* Scopoli, 1777 should be placed on the “Official List of Generic Names in Zoology” in preference to *Anguillulina* Gervais & Beneden, 1859 or *Tylenchus* Bastian, 1865. R.T.L.

197—California Agriculture.

- a. HARDING, R. B., 1951.—“High-yield orange orchards. Management practices and soil conditions studied in 43 mature, high-performance orchards in California.” 5 (9), 12, 14.
b. BAINES, R. C., 1951.—“Citrus-root nematodes on olive. Pest pathologically and morphologically similar to that on orange roots infests and reproduces on olive roots.” 5 (10), 11.

(197a) Of 43 high-yield orange orchards, 20 or more years old, in Southern California none was free of citrus root nematodes and in most cases substantial numbers were present. R.T.L.

(197b) The citrus-root nematode, *Tylenchulus semi-penetrans*, has been found infesting olive roots under natural conditions in California. Baines, in this short article, reports on cross inoculation studies whereby he has found that the eelworms from orange and olive roots are morphologically indistinguishable and have similar pathological effects. Orange roots are more readily infected than those of olive. T.G.

198—Canadian Journal of Public Health.

- a. STANYON, J. H., 1951.—“Trichinosis in Sudbury, Ontario.” 42 (5), 179-184.

(198a) Clinical notes are given by Stanyon of ten cases of clinical trichinosis seen by him during 1948 and 1950 in Sudbury, Ontario, and its vicinity. R.T.L.

199—Canadian Journal of Zoology.

- a. CAMERON, T. W. M. & REESAL, M. R., 1951.—“Studies on the endoparasitic fauna of Trinidad mammals. VII. Parasites of hystricomorph rodents.” 29 (4), 276-289.
b. CHOQUETTE, L. P. E., 1951.—“Parasites of freshwater fish. V. Parasitic helminths of the muskallunge, *Esox m. masquinongy* Mitchill, in the St. Lawrence watershed.” 29 (4), 290-295.

(199a) Cameron & Reesal record eleven species of helminths from *Cuniculus paca* (= *Coelogenys* or *Agouti paca*) and *Dasyprocta agouti*. Among these are three new varieties

and one new species all of which are described and illustrated. These are *Raillietina* (*R.*) *demerariensis* var. *trinitatae* n.var. from both hosts, and *Trichuris gracilis* var. *trinitatae* n.var., *Aspidodera binansata* var. *agoutiae* n.var. and *Helminthoxys urichi* n.sp. from *D. agouti*. *H. urichi* is distinguished from *H. caudatus* by its measurements and the presence of distinct finger-like supralabia guarding the vestibule. S.W.

(199b) Eighty-eight per cent of the common game fish *Esox m. masquinongy* in the St. Lawrence River and its tributaries are infected, but only lightly, with helminths. Of the eight species listed the commonest were *Triaenophorus nodulosus* and *Azygia longa*. R.T.L.

200—Canadian Medical Association Journal.

- a. STRANGWAY, W. E. & STRANGWAY, A. K., 1951.—“*Onchocerca volvulus* in Angola, Africa.” 64 (5), 427-429.

(200a) At Chissamba, Angola, Africa, 220 cases of infection with *Onchocerca volvulus* were diagnosed between August 1949 and August 1950; seven of these were Canadian missionaries and the rest Africans. Ocular symptoms, skin lesions, nodules and eosinophilia frequently occurred and there were two cases of severe uterine infection. Hetrazan arrested the development of blindness and temporarily alleviated the skin conditions although the latter often recurred 4-5 months after treatment ceased. In many cases there were severe reactions during the early part of treatment. Asthma which occurred in three cases is thought to be due to an allergy from the parasites; the asthmatic symptoms of one patient were cured after three courses of hetrazan. The vector is *Simulium damnosum*. The authors believe that this is the first occasion on which *O. volvulus* infection has been reported in Angola. P.M.B.

201—Chinese Medical Journal. Peking.

- a. CHUNG, H. L., HOU, T. C., HUANG, T. Y. & WENG, H. C., 1951.—“Areca nut (betel nut) and oleoresin of *Aspidium* in the treatment of intestinal taeniasis.” 69 (1/2), 76-79.
- b. CHEN, C., 1951.—“Acute appendicitis caused by *Ascaris* worms. Report of an unusual case with three worms in the lumen of the appendix.” 69 (3/4), 151-154.
- c. OUYANG, C. & KAO, H. C., 1951.—“Treatment of intestinal cestodiasis with areca nut by the transduodenal method.” 69 (5/6), 218-220.

(201a) Chung *et al.* have treated 120 patients suffering from taeniasis. They used areca nut for 65 cases, oleoresin of male fern for 46 cases, and male fern extract for nine cases. They found areca nut to be highly specific for *Taenia solium* and fairly effective against *T. saginata*, and consider it to be the remedy of choice. S.W.

(201c) A decoction of areca nut administered directly into the duodenum through a tube in the early morning proved very effective in cases of *Taenia solium* and *T. saginata*. Forty grammes of dried thin slices of the nut were boiled in 300 c.c. of water for about 30 minutes until the volume was reduced to about 120 c.c. The decoction was then cooled to about 37°C. before use. R.T.L.

202—Chirurg. Berlin.

- a. KONG, G. T., 1951.—“Perforierte idiopathische Cholelithiasis mit *Clonorchis* im Cysteninhalt.” 22 (2), 56-57.

203—Comptes Rendus des Séances de l'Académie des Sciences. Paris.

- a. MOIGNOUX, J. B., 1951.—“*Culicoides nubeculosus* Meig (Diptère Cératopogonide), hôte intermédiaire possible de la filaire *Onchocerca reticulata* Dies. en Camargue.” 233 (1), 102-103.

(203a) Microfilariae of *Onchocerca reticulata*, a common parasite of horses in the Camargue district of France, developed in 21 days in experimentally infected *Culicoides nubeculosus*. On the 22nd day large numbers of microfilariae were found in the labium.

Moignoux therefore considers that *C. nubeculosus* may be the local intermediate host of *O. reticulata*. P.M.B.

204—Cornell Veterinarian.

- a. WHITLOCK, J. H., 1951.—“The relationship of the available natural milk supply to the production of the trichostrongylidoses in sheep.” 41 (3), 299-311.
- b. BURGHARDT, H. F., WHITLOCK, J. H. & McENERNEY, P. J., 1951.—“Dermatitis in cattle due to *Simulium* (black flies).” 41 (3), 311-313.

(204a) There is a high correlation between the rate of growth of young lambs and their milk supply. An abnormal condition of the udders of the ewe is an important factor in the spread of trichostrongylidoses to their offspring. An experiment by Whitlock showed that over a period of time an animal with a deficient milk supply or even none can recover physique and weight provided its metabolism is not influenced by parasitism. R.T.L.

(204b) Rhabditiform larvae were found in skin scrapings from the ventral abdomen of a Holstein heifer. There were scabby ridges of skin which contained numerous eosinophils infiltrating the inflamed area. The lesions were very suggestive of early lesions of *Stephanofilaria* but the rhabditiform larvae probably resulted from soil contamination. R.T.L.

205—Dansk Landbrug.

- a. KOFOED, A. D., 1951.—“Kartoffelaal.” 70, 346-347.

(205a) New regulations for the control of potato eelworm (*Heterodera rostochiensis*) have been issued in Denmark. “Statens Plantetilsyn” may prohibit or restrict growing of potatoes or tomatoes in a district where the eelworm has been found. The transport of potatoes or plants with adherent soil from infected farms or from land adjoining such farms may be prohibited. S.B.

206—Deutsche Gesundheitswesen (Das).

- a. ZANDER, R., 1951.—“Über einen Fall von generalisierter Cysticercose beim Menschen.” 6 (23), 658-659.

207—Deutsche Pelztierzüchter (Der).

- a. ENIGK, K., 1951.—“Zur Biologie und Bekämpfung des Harnblasenwurmes des Silberfuchses.” 25 (7), 128-129.

(207a) Enigk gives a brief account of his experimental work which established that *Capillaria plica* needs an earthworm intermediary to complete its life-cycle [for a fuller account of these experiments see Helm. Abs., 19, No. 429c]. Infection in silver foxes can therefore be prevented by ensuring that earthworms are not ingested with food: enclosures should be above the level of the surrounding soil and runs should be laid out where possible on dry sand. Where earth runs cannot be avoided, the soil should be treated with 0.5% to 1% hexachlorocyclohexane at a rate of at least half a litre per square metre. Caustic solutions and decoctions of horse chestnut, walnut leaves, tobacco leaves, etc. poured over the soil will also kill worms. A.E.F.

208—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R., 1951.—“Werden Strongylyden durch subtherapeutische Gaben phenothiazinfest?” 58 (33/34), 267-268.

(208a) Wetzel gave daily doses of 1 gm. phenothiazine for two periods of seven weeks with a seven-week interval to a mare with a light, natural *Trichonema* infection: the animal was kept throughout the experiment under conditions which precluded re-infection. Both courses of treatment reduced the egg-count to nil, but 59 days after the second treatment the egg-count had risen to 133 per gramme of faeces. Two days after a 21 gm. dose

of phenothiazine egg-counts were again negative and were still negative after eleven weeks. A worm-free foal fed larvae cultured from the mare's faeces developed an infection which was cured by a 15 gm. dose of phenothiazine repeated after one month. Wetzel concluded that neither strongyle larvae subjected to repeated sub-therapeutic doses of phenothiazine nor their progeny become resistant to the drug.

A.E.F.

209—Día Médico. Buenos Aires.

- *a. BREA, M. M. J. & SANTAS, A. A., 1951.—"Resultados del tratamiento del quiste hidatídico del pulmón con especial referencia a las resecciones." 23 (16), 632-638.
- *b. DUCLOUX, K. H., 1951.—"Quistes hidáucos del diafragma. Contribución a la casuística." 23 (18), 739-744.

210—Dokladi Akademii Nauk SSSR.

- a. BIKHOVSKAYA-PAVLOVSKAYA, I. E. & DUBININA, M. N., 1951.—[New species of trematode *Leucochloridium phragmitophila* n.sp. from passeriformes.] 76 (1), 161-162. [In Russian.]
- b. PETROV, A. M. & POTEKHINA, L. F., 1951.—[The life-cycle of the cestode *Hydatigera krepkogorski* Schulz & Landa, 1934.] 76 (1), 163-164. [In Russian.]
- c. SPASSKI, A. A., 1951.—[Biologic and taxonomic importance of the reticular structure in the uterus of anoplocephalids.] 76 (1), 165-168. [In Russian.]
- d. POTEKHINA, L. F., 1951.—[The life-cycle of *Alaria alata* and alariosis in foxes and dogs.] 76 (2), 325-327. [In Russian.]

(210a) *Leucochloridium phragmitophila* n.sp. is described from *Acrocephalus arundinaceus*, *Panurus biarmicus*, *Motacilla alba*, *M. flava* and *M. citreola*. It occurs in the large intestine and sometimes in the cloaca, bursa Fabricii and urinary ducts. It differs from *L. actitis* by the shape of the body and the position of the uterus, from *L. macrostomum* in the above characters and also in the position of the genital glands and the length of the vitellaria, and from *L. holostomum* in the size and shape of the body and in the length of the vitellaria. C.R.

(210b) *Rhombomys opimus* in Kazakhstan and *Pallasiomys meridianus* in Kavkaz are commonly infested with a larval stage described by Schulz & Landa in 1934 as *Hydatigera krepkogorski*. In the same districts *Felis ornata caudata* harbours an adult tapeworm whose scolex is identical with that of the larval stage in the rodents. The authors conclude therefore that the rodents are intermediate hosts of the form in *Felis ornata caudata*. A full description of the adult is given. C.R.

(210c) In a review of the family Anoplocephalidae, Spasski creates a new subfamily Monieziinae based on the reticular character of the uterus. In it he includes the genera *Moniezia*, *Andrya*, *Aprostotandrya* n.g., *Fuhrmanella*, *Monoecocestus*, *Cittotaenia* and *Diandrya*. *Aprostotandrya* is divided into two subgenera: *A. (Aprostotandrya)* n.subg. with testes situated posteriorly and *A. (Sudarikovina)* n.subg. with testes situated anteriorly to the female genital glands. All the anoplocephalids with a transverse tubular uterus are included in the subfamily Anoplocephalinae. C.R.

(210d) Potekhina has investigated the life-cycle of *Alaria alata*. The miracidia develop in *Planorbis planorbis* and *P. vortex*. The second intermediate hosts are tadpoles in which metacercariae develop in the body cavity and in the tail in 11-12 days. She found metacercariae in naturally infected tadpoles and in adults of *Rana temporaria* and *R. esculenta*. Experimentally and naturally infected tadpoles were fed to dogs and foxes; of 15 animals 12 became infected and produced adults in 32-45 days. Potekhina also fed metacercariae to white mice and found the encysted metacercariae in their intercostal muscles; when these were fed to foxes and a dog they developed into adults in 32-38 days. C.R.

210—Dokladi Akademii Nauk SSSR (cont.)

- e. ZELIKMAN, E. A., 1951.—[Biology of larval stages of trematodes belonging to the family Microphallidae.] 76 (4), 613–616. [In Russian.]
- f. SMIRNOV, G. G. & KAMALOV, N. G., 1951.—[Transfer of *Bacillus anthracis* by ancylostomid larvae.] 76 (5), 759–760. [In Russian.]
- g. LOGACHEV, E. D., 1951.—[The tissue-character and physiological importance of the subcuticular cells in tapeworms.] 77 (1), 161–163. [In Russian.]
- h. OSHMARIN, P. G. & BELOUS, E. V., 1951.—[Significance of the localization index of helminths in their systematics, based on the example of a new echinostomid from eagle.] 77 (1), 165–168. [In Russian.]
- i. SHUMKINA, O. B., 1951.—[Division of the leech egg.] 77 (2), 353–356. [In Russian.]
- j. SHUMKINA, O. B., 1951.—[Development and metamorphosis of the medicinal leech larvae.] 77 (4), 761–764. [In Russian.]

(210e) Zelikman examined snails, fishes and crustaceans of the White Sea and found larvae of trematodes belonging to ten families, but the most widely distributed were larvae of the family Microphallidae. Infections were found in 16.86% of 581 *Littorina littorea*, in 2.62% of 1,230 *L. rudis*, in 2.03% of 934 *L. palliata*, in 0.23% of 1,292 *Hydrobia ulvae*, in 0.25% of 415 *Rissoa aculeus* and in 0.53% of 383 *Margarita helicina*. Most of the *L. littorea* were infected by *Spelotrema pygmaeum*. 60% of *Gammarus locusta* were infected, mainly with *Spelotrema nicolli*. In sticklebacks and young flounders there were metacercariae of *Spelotrema* (?). The percentage of infection depended on the population of definitive avian hosts. There was seasonal variation in the incidence of larvae in *Littorina*. The intensity of infection was very high. *L. littorea* contained up to 900 sporocysts each containing 15–75 metacercariae; in small littorins there were up to 150 sporocysts with 5–8 metacercariae at different stages of development. Zelikman's view is that shortening of the life-cycle in the development of microphallids is a progressive act—insuring heavy infection of the final host and a wide distribution of the species. C.R.

(210f) Four experiments were carried out with suspensions of *Bacillus anthracis* on hamsters. The suspensions were, (i) inoculated subcutaneously in saline, (ii) fed *per os*, (iii) placed on the skin and (iv) placed on the skin with larvae of *Necator americanus*. Those animals which were inoculated subcutaneously died in 24–36 hours; those which had bacilli with larvae died in 48–96 hours; those which were fed with suspensions of bacilli and those in which bacilli were placed on the skin without larvae survived 86 days and when killed were negative for anthrax. C.R.

(210g) In *Raillietina urogalli* the subcuticular cells are (i) the elements of internal sphere, (ii) they change into amoebocytes and desmocytes and seem to be cambial elements of the parenchyma. The subcuticular cells containing food elements become rounded granular amoebocytes which migrate deeper into the segment. They have thus a trophic function in that they change and transfer the nutritive substance to other organs. C.R.

(210h) *Neophroechinostoma aquillae* n.g., n.sp. from the kidney of *Aquila clanga*, is described and placed in a subfamily Neophroechinostomatinae n.subf. which has the following characters: the body is elongated and covered in the anterior half with spines; the head collar is small, its two halves joined by a ventral plate; the spines on the collar are rudimentary with a large interval on the dorsal side; the large oblong testes are situated in the middle of the body; the yolk glands do not unite and each lateral group is divided into two. C.R.

(210j) Shumkina gives a detailed account of the development of the medicinal leech. The amount of nutritive substance used by the larva does not greatly influence the rate of development during metamorphosis but rather the final formation of organs which are necessary for free existence. In her opinion the inability of some leeches to feed is connected with the under-development of the alimentary system. C.R.

210—Dokladi Akademii Nauk SSSR (cont.)

- k. GUBANOV, N. M., 1951.—[A giant nematode from the placenta of cetaceans—*Placentonema gigantissima* n.g., n.sp.] 77 (6), 1123-1125. [In Russian.]
- l. KOMAROVA, M. S., 1951.—[The life-cycle of the trematode *Coitocoecum skrjabini* Iwanicky.] 77 (6), 1127-1128. [In Russian.]
- m. KOMAROVA, M. S., 1951.—[The life-cycle of *Asymphyldora tincae* Modeer (Trematoda—Digenea).] 78 (1), 177-178. [In Russian.]
- n. MIRETSKI, O. Y., 1951.—[Influence on the functional activity of the helminth due to the experimentally provoked changes in the organism of the host.] 78 (3), 613-615. [In Russian.]
- o. SHUMKINA, O. B., 1951.—[Embryonal stripe and cephalic rudiment of the medicinal leech.] 78 (4), 821-824. [In Russian.]
- p. BAUER, O. N., 1951.—[The pathogenicity of *Dactylogyrus solidus* Achmerov.] 78 (4), 825-827. [In Russian.]

(210k) Gubanov describes and illustrates *Placentonema gigantissima* n.g., n.sp. (Crassicaudidae) from the placenta of the cetacean *Physeter catodon*. This nematode, which is from over 2 mm. to over 8 mm. long, cannot be placed in *Crassicauda* because it has caudal alae, pedunculated papillae and is multi-uterine (32 uteri). C.R.

(210l) Komarova has investigated the seasonal incidence of *Coitocoecum skrjabini* in the fish *Acerina acerina*. In summer both mature (94.4-100%) and immature (20.8-42.1%) flukes were present. In autumn 73.3% sexually mature and 33.3% immature forms were present. Young flukes were at different stages of growth when among the mature specimens some were at point of death. In winter mature flukes only were found, some containing a few eggs, and some fully developed but not producing eggs. The author draws the following conclusions: (i) flukes which infect fish in summer, mature during the summer, autumn and winter; in spring these lay eggs and die and the larvae develop in intermediate hosts and in the summer reinfect fish: (ii) flukes which infect fish in the autumn, mature during the autumn, winter and spring and in the summer they lay eggs and die and larval development takes place in the intermediate host. Fish are then infected in the autumn. C.R.

(210m) The longevity of *Asymphyldora tincae* in the tench is one year only. The flukes lay eggs in autumn and winter, and some in early spring, and then die. The life-cycle takes place in the intermediate hosts *Bithynia tentaculata* and *Radix auricularia*. At the end of the autumn, in winter and in spring infection of the fish takes place and eggs are produced in summer. C.R.

(210n) Miretski has found that when oviposition in *Rana temporaria* is artificially induced in winter by injecting a suspension of hypophysis into the abdominal cavity, egg laying is also artificially induced in *Polystoma integerrimum* after about three to four days. The fluke eggs are viable and develop normally. C.R.

(210p) Bauer has found *Dactylogyrus solidus* larvae on 9-day-old carp and adults on older fish. The parasites attach themselves to the secondary gill filaments and produce proliferation of the epithelial layer which interferes with respiration. Young fish measuring 3-4 cm. in length died when infected experimentally with 30-40 parasites. In fish infected early in life the rate of growth was reduced. The author also examined fish dying in epizootics in natural conditions and on some of the young fish he found as many as 400 of these flukes. Immersion of the fish in 5% and 7% sodium chloride was not effective as a treatment. Prophylactic measures recommended are (i) the removal of infected breeding fish, (ii) the separation of young fish from old, (iii) the liming of ponds when dry and (iv) the use of these infected ponds for breeding fish other than carp. C.R.

211—Experimental Parasitology. New York.

- a. READ, C. P., 1951.—"Studies on the enzymes and intermediate products of carbohydrate degradation in the cestode *Hymenolepis diminuta*." 1 (1), 1-18.
- b. EVANS, A. S. & STIREWALT, M. A., 1951.—"Variations in infectivity of cercariae of *Schistosoma mansoni*." 1 (1), 19-33.

- c. DOUGHERTY, E. C., 1951.—"The axenic cultivation of *Rhabditis briggsae* Dougherty and Nigon, 1949 (Nematoda: Rhabditidae). II. Some sources and characteristics of the 'factor Rb'." 1 (1), 34-45.
- d. BECK, J. W., 1951.—"Effect of diet upon singly established *Hymenolepis diminuta* in rats." 1 (1), 46-59.
- e. SADUN, E. H., 1951.—"Gonadal hormones in experimental *Ascaridia galli* infection in chickens." 1 (1), 70-82.

(211a) Read has examined the acid-soluble phosphorus compounds in the resting tissue of *Hymenolepis diminuta*. All the intermediates found in the primary steps of carbohydrate utilization in the tissues of vertebrates and in yeasts were identified in *H. diminuta*, with the exception of phosphopyruvic acid. No phosphagens were found. The enzymes phosphorylase, phosphohexmutase, hexokinase, aldolase, phosphoglyceraldehyde dehydrogenase and lactic dehydrogenase were found to be active in the tissues of the parasites. The author concludes that the primary reactions of carbohydrate degradation in the parasite are similar to those in the Myerhof-Embsden cycle. W.P.R.

(211b) From a study of the adult *Schistosoma mansoni* which developed in 523 mice, each of which was exposed to 100 cercariae collected at intervals of emergence from *Australorbis glabratus*, it is concluded that there are statistically significant variations in infectivity which are apparently related to the physiological condition of the molluscan host, and therefore to the duration of patency of the infection in the snail. R.T.L.

(211c) Dougherty showed that the heat labile factor (Rb) required for the growth and reproduction of *Rhabditis briggsae* under axenic conditions was non-dialyzable and was precipitated by ammonium sulphate. The best sources of the Rb factor were found to be chick embryo juice and fresh or freeze-dried aqueous liver extract. W.P.R.

(211d) Beck finds that eggs of *Hymenolepis diminuta* first appear in the faeces of laboratory bred rats 18-20 days after infection with a single cysticercoid. The average number of eggs per 24 hours in rats on a complete diet was 205,000 in males and 167,000 in females. When brewer's yeast was omitted from the diet and replaced by a solution of six members of the vitamin B complex, there was a drop in egg production to 50,000 eggs per 24 hours in the female rats within 30 days, but not in male rats until after three months. Vitamin B₁₂ added to the deficient diet did not increase egg production but administration of bile from male dogs to rats of both sexes did increase output. This increase was not maintained in the female rats. S.W.

(211e) Sadun has tested experimentally the effect of injections of sex hormones on the resistance of immature chickens to infections of *Ascaridia galli*. He found that regular injections of α -estradiol benzoate into females and of testosterone propionate into males facilitated the elimination of *A. galli*. There did not appear to be any sex difference in the resistance of normal chickens. There was some indication that the hormones temporarily affected the growth of the parasites, the female retarding and the male accelerating growth. S.W.

212—Farmer's Weekly. Bloemfontein.

- a. DAULTON, R. A. C. & STOKES, W. M., 1951.—"Eelworm destroyed in soil by electric current. Southern Rhodesia Tobacco Research Board obtains encouraging results from field tests." 81, 41. [June 20th.]

(212a) *Heterodera marioni* is killed when subjected to a pulsating direct current of unidirectional flow. The lethal range in soil beneath the electrodes is approximately semi-spherical. A comparatively small charge destroys the larvae but the potential has to be raised to affect all stages for immature and fully gravid females are killed more easily than those approaching maturity. The egg masses within the females shrink. Fully gravid worms frequently burst and disintegrate. In limited field trials on tobacco beds, the control

plots were heavily infested and only 17% of the plants were free from infection, whereas 71% of the plants in the treated plots were free from infection and the remainder only slightly infected. The electrode spacing was 24 inches. The apparatus used was a simple induction coil operated from storage batteries with a vibrator type interrupter in the primary circuit.

R.T.L.

213—Farming in South Africa.

- a. VAN DER LINDE, W. J., SMITH, A. J. & ANGELOPULO, V., 1951.—“The control of eelworm.” 26 (304), 243–248.
- b. SMITH, A. J. & VAN DER MERWE, G., 1951.—“Control of insect pests and plant diseases in tobacco seedbeds.” 26 (306), 315–316.
- c. ANON., 1951.—“Treatment with nodular-worm remedy.” 26 (306), 318, 320.

(213a) Damage “amounting to tens of thousands of pounds” is caused yearly in South Africa by *Heterodera marioni*. The characteristic symptoms, biology and habits are briefly summarized. Steam sterilization of seed-beds is better than fumigation. Shell D-D and Dowfume W40 were the most effective of the many chemicals tested. Control by agricultural methods included desiccation, fallow and crop rotation. Fumigants should not be used for infected trees in orchards. For cash crops, e.g. tomatoes, tobacco and carnations, fumigants justify their cost.

R.T.L.

(213b) Steam sterilization of tobacco seed-beds for the control of eelworm is preferable to fumigation as it also destroys injurious insects, fungal diseases and weeds. It is necessary to treat virgin soil as this cannot be guaranteed to be free from eelworm infection. Open fires cannot be used instead of steam as they sterilize only the top few inches of soil.

R.T.L.

(213c) As young nodular worms may live in the gut wall of sheep for over a year, single doses should be given regularly every three weeks as long as the pastures are green. When the pastures become dry in winter [in South Africa] the sheep cease to become infected, but it is very important to start regular dosing in the spring to remove the worms which have matured during the winter. Administration of the official nodular worm remedy [composition unspecified] to sheep should be preceded immediately by 10% solution of copper sulphate and to cattle by half a cupful of salt water. The remedy is also effective against wireworm and tapeworm in cattle.

R.T.L.

214—Fragmenta Faunistica Musei Zoologici Polonici.

- a. PAWŁOWSKI, L. K., 1951.—“Pijawki (*Hirudinea*) stacji pomp rzecznych oraz stacji filtrów w Warszawie.” 6 (10), 169–192. [English summary pp. 190–192.]

(214a) The following leeches are recorded from the River Vistula near the Warsaw waterworks: *Piscicola geometra*, *Glossosiphonia complanata*, *Helobdella stagnalis*, *Haemopsis sanguisuga*, *Erpobdella octoculata* and *E. testacea* var. *nigricollis*. Formerly only *P. geometra* was known in this river. In the open reservoirs *Hemiclepsis marginata*, *Theromyzon tessulatum* and *E. monostriata* were also present; in the covered cisterns of the waterworks *G. complanata*, *Helobdella stagnalis*, *E. octoculata* and *E. testacea* var. *nigricollis* were recorded. The number of leeches decreased from the Vistula towards the waterworks. The absence of *P. geometra*, *Hemiclepsis marginata* and *T. tessulatum* from the covered installations is attributed to the lack of vertebrate hosts. There appeared to be no significant difference in the degree of body pigmentation according to habitat. The leeches exerted a harmful effect on the filter strata, destroying the organic film which is of great importance in the filtering process.

P.M.B.

215—Gazeta Médica Portuguesa.

- a. SOUSA DIAS, A. G. DE, 1951.—“Quisto hidático do pulmão. Sinal do ‘camalote’.” 4 (1), 33–34.

216—Hospital. Rio de Janeiro.

- a. MACHADO, W. G. & MARTINS, C., 1951.—“Um foco autóctone de schistosomose no Pará. (Nota prévia.)” 39 (2), 289-290.
- b. PAES DE OLIVEIRA, P., 1951.—“Conceituação de luta anti-helmíntica no exército.” 39 (3), 423-442.

(216a) Machado & Martins report the existence of an endemic focus of schistosomiasis mansoni at Fordlândia in the Tapajos Valley in Brazil, where 50 cases were diagnosed; 80% of them were children and of these 40% were born at Fordlândia and had never left the place. Investigations did not reveal the intermediate host: the many *Tropicorbis paparyensis* in the vicinity were found to be free from cercariae. P.M.B.

(216b) Paes de Oliveira describes plans for an anthelmintic campaign in the Brazilian army for the control of hookworm disease, ascariasis and trichuriasis which are endemic throughout Brazil, and of schistosomiasis mansoni, hydatidosis and filariasis bancrofti which affect areas indicated on a map; the distribution of strongyloidiasis is unknown. P.M.B.

217—Indian Journal of Pediatrics.

- a. DE SILVA, L. J., 1951.—“Two cases of infestation with *Hymenolepis diminuta* in children.” 18 (69), 24-28.

(217a) Two cases of *Hymenolepis diminuta* in children under two years old are reported from the Lady Ridgeway Hospital at Colombo. R.T.L.

218—Indian Journal of Surgery.

- a. DAS, N., 1951.—“Hydatid cyst of the kidney.” 13 (1), 85-87.

219—Indian Medical Gazette.

- a. BHAIJEKAR, M. V., 1951.—“A note on the treatment of guinea-worm infection.” 86 (5), 193-196.
- b. CHATTERJEE, P. K. & ROY, B. B., 1951.—“A severe case of anaemia associated with hookworm not responding to oral iron therapy and parenteral liver extract treated with intravenous iron.” 86 (5), 201-202.
- c. ARORA, R. B., 1951.—“Ancylostomiasis. A study.” 86 (5), 203-204.

(219a) Bhajekar reports the successful treatment of about 85% of 200 cases of dracontiasis, using the adventitious roots of *Ficus bengalensis*. He gives details of 13 cases of which complete records are available. Young roots are minced and mixed with an equal quantity of crude sugar and a dose of about 1½ oz. of the mixture is given three hours before the first meal every morning for ten days. In some cases a second course of treatment is necessary. For children under 12 years old, half this dose is recommended. S.W.

(219c) Arora summarizes his work on ancylostomiasis, the full account of which was submitted as a thesis in the University of Lucknow in 1945. He includes details of his observations on 91 cases of the disease and records of 540 further cases. S.W.

220—Irish Veterinary Journal.

- a. WILLMOTT, S. & PESTER, F. R. N., 1951.—“Preliminary account of an investigation into the paramphistomes of cattle and sheep in the Republic of Ireland.” 5 (10), 198-200.
- b. ANON., 1951.—“Parasitic diseases.” 5 (10), 200-201.

(220a) Willmott & Pester found that 9.7% of the bullocks and cows slaughtered in abattoirs in Dublin, Waterford and Castlebar were infected with paramphistomes, although in most cases the number of parasites present in the rumen and reticulum was less than 100. A more detailed account of the investigation is promised. S.W.

(220b) This short article summarizes the campaign against helminth diseases in cattle carried out by the Department of Agriculture of the Republic of Ireland from 1946 to 1950. It is estimated that deaths caused by parasitic diseases dropped from 853 in 1947-1948 to 6 in 1948-1949 as a result of treatment by hexachlorethane and phenothiazine. The dangers of widespread sub-clinical helminthiasis are emphasized. S.W.

221—Italia Agricola.

- a. CICCARONE, A., 1951.—“La fumigazione del suolo.” 88 (6), 329-340.

(221a) In a warm-temperate country like Italy, *Heterodera marioni* is an important pest, especially in light sandy or volcanic soils. Ciccarone briefly discusses indirect control measures (rotation with non-susceptible crops or the use of resistant varieties) and such direct measures as mulching, trap-cropping, steam sterilization, and chemical treatment with quick lime, calcium cyanamide, cyanides, phenol and carbon disulphide dispersions. The last can be more conveniently used as a soil fumigant and this leads Ciccarone into a detailed account of the principles and practice of fumigation. Soil preparation, temperature and moisture conditions, types of hand and tractor injectors, subsequent covering or watering of the soil are discussed, and several applicators are illustrated. The commercially available fumigants are described and finally, for the treatment of perennials (trees and vines), the use of 10% emulsions (in water) of halogenated hydrocarbon fumigants is recommended. B.G.P.

222—Journal of Agriculture of Western Australia.

- a. MORRIS, R. H., 1951.—“The control of intestinal round worms in poultry.” 28 (1), 33-39.

(222a) Morris reviews the pathogenicity, life-cycle, prophylaxis and control of *Ascaridia galli* in Western Australia. Where young stock are only lightly infected, dosing with “Black Leaf 40” (nicotine sulphate) at 10 and 18 weeks of age is recommended. The drug is fed with wet mash at the rate of $\frac{3}{4}$ tablespoonful per 250 birds on six consecutive days at the first dosing and one tablespoonful at the second, after starving for 24 hours before the first day's treatment in each course. For heavier infections, individual treatment with carbon tetrachloride at the rate of 1.5 c.c. per bird 10-14 weeks old, 2 c.c. per chicken over 14 weeks and 3 c.c. for older hens after starving for 22 hours is recommended. An alternative for a small flock is individual dosing with capsules containing tetrachlorethylene at 10 and 18 weeks at the following rates: up to eight weeks 0.5 c.c. per bird, chickens over eight weeks 1 c.c., adult birds 2 c.c. and turkeys 1 c.c. to 3 c.c. according to size. P.M.B.

223—Journal of the American Medical Association.

- a. BEARD, R. R., 1951.—“Incidence of Trichinella infections in San Francisco, 1950.” 146 (4), 331-333. [Discussion pp. 333-334.]
b. DEMAY, G. H., LONG, R. S., SCHENKEN, J. R. & SIMMONS, E. E., 1951.—“Vinegar eel in sputum. Report of a case.” 146 (7), 645.

(223a) Beard examined portions of diaphragm from 161 humans in San Francisco between November 1949 and June 1950. He found *Trichinella* larvae in only 13 (8%); of these ten showed dead encysted larvae and three living excysted larvae. He compares his results with those of McNaught & Anderson in 1936 who found an incidence of 24%. He is of the opinion that this represents a true decrease in infection, and attributes it to the stricter regulations now in force on the production of ready-to-serve pork foods, to the decrease in the numbers of pigs fed on garbage, and to teaching the public that pork must be cooked. S.W.

(223b) DeMay *et al.* report finding a single *Anguillula aceti* in the sputum of a patient who had eaten spinach and vinegar the previous night. Large numbers of the eelworm were found in the vinegar from which he had been served. No nematodes were found in the lung tissue after lobectomy. S.W.

224—Journal of the American Veterinary Medical Association.

- a. ENZIE, F. D., 1951.—“Do whipworms occur in domestic cats in North America?” 119 (894), 210-213.
- b. ANDERSON, G. W., GODBEY, E. G. & DURANT, A. L., 1951.—“The lethal effect of benzene hexachloride and the delta isomer on swine kidney worm larvae.” 119 (895), 293-294.
- c. TODD, A. C. & DOHERTY, L. P., 1951.—“Treatment of ascariasis in horses in central Kentucky.” 119 (896), 363-367.
- d. FRICK, E. J., 1951.—“Parasitism in bison.” 119 (896), 386-387.

(224a) Enzie reviews the few previous reports of *Trichuris* infection in cats in North America. He considers (i) that there is not sufficient evidence to confirm its presence, as each of these reports was based only on the finding of ova in the faeces and (ii) that the ova were probably those of capillarid worms. The differential characters of the ova of various nematode parasites of cats and dogs, including three species of *Capillaria*, are illustrated and described. P.M.B.

(224b) Anderson *et al.* investigated the effect of infections of *Stephanurus dentatus* on the weight gains of weaned pigs and found that at six months the average slaughter weight was 65 lb. less in infected than in non-infected animals. They tested the effect of commercial benzene hexachloride and its delta and epsilon isomers on *S. dentatus* larvae *in vitro*, and found that all three killed almost all the larvae in 24 hours but that none inhibited embryonation or hatching. The toxicity of only the delta isomer to pigs was tested; 6% in a water miscible dust was sprinkled at the rate of about $\frac{1}{2}$ lb. per 100 sq. ft. over pen and bedding before and immediately after farrowing, and every seventh day for eight weeks thereafter. Toxic symptoms were not seen in any of the litters so treated. S.W.

(224c) *Ascaris* infection is almost universally present in young Thoroughbred foals in central Kentucky. Carbon bisulphide is the drug of choice of veterinary practitioners there. Its failure is due to the methods customarily followed. The drug is ineffective against immature *Ascaris* and the three drachms dosage used is too small. Its volatility and irritant action call for careful administration and phenothiazine seriously interferes with its action. By itself it only reduces the effects of infection in individual horses. From a study extending over three years, Todd & Doherty recommend that treatment should be so timed as to remove the worms when they are reaching sexual maturity, i.e. when the foals are eight weeks old. This prevents massive spring infections and contamination of pastures and paddocks. R.T.L.

(224d) In a herd of over 300 bison located at Independence in Kansas over a period of several months seven animals had become sick and thin, had developed diarrhoea and had died. At one post-mortem examination *Dictyocaulus viviparus*, *Oesophagostomum radiatum* and a few *Haemonchus contortus* were found but extensive lesions in the stomach and intestinal mucosa together with the clinical history, gave support to the opinion that the losses were caused by the helminth infections. R.T.L.

225—Journal of Clinical Investigation.

- a. AIKAWA, J. K., HARRELL, G. T. & MILLER, T. B., 1951.—“The immunophysiology of trichinosis. Alterations in the blood volume and the thiocyanate space in relation to the development of humoral antibodies in the rabbit.” 30 (6), 575-581.

(225a) One of the most frequent manifestations of trichinosis is oedema, especially of the eyes. Experiments on rabbits show that the clinical symptoms and signs of trichinosis are not solely due to mechanical blocking of capillaries or arterioles by larvae but are probably due to redistribution of fluid in the extravascular spaces. There is an increase in permeability probably in the capillary wall which permits the crystalloids to pass into the interstitial spaces. As the physiological changes were greatest just before humoral antibodies appeared the alterations may have been due to an antigen-antibody reaction. R.T.L.

226—*Journal Français de Médecine et Chirurgie Thoraciques.*

- a. TURIAF, J., BLANCHON, P. & CLAISSE, R., 1951.—“Pleurésie à éosinophiles et péricardite au cours d'une infestation par *Necator americanus*.” 5 (2), 157-164. [Discussion p. 163.]

227—*Journal of Infectious Diseases.*

- a. RAPPAPORT, I. & WELLS, H. S., 1951.—“Studies in trichinosis. I. Immunity to reinfection in mice following a single light infection.” 88 (3), 248-253.

(227a) Rappaport & Wells have carried out five controlled experiments on the immunity of mice, initially infected with about 100 *Trichinella* larvae, to a single reinfection. Two groups of mice were reinfected with 800 larvae after 10 and 36 days respectively, and two groups with 800 larvae after 3½ months; the fifth group was given 300 larvae after 35 days. There was no significant difference in adult worm counts between the controls and the first four groups, but in the reinfected groups the worms were shorter and the females contained fewer eggs and embryos. In the fifth group, there was a loss of adult worms which began less than a fortnight after reinfection, and this group showed the highest degree of immunity (based on counts of larvae in the muscles). In all groups there was a smaller number of larvae present in the muscles than was to be expected from the numbers of adults found and this is attributed to a loss of fecundity in the females in reinfected mice. Differences in the results from the two groups reinfected after 3½ months, and other atypical results are thought to be due to variations in the infectivity of larvae. S.W.

228—*Journal of Laboratory and Clinical Medicine.*

- a. PAN, C. & HUNTER, III, G. W., 1951.—“A modified perfusion technique for the recovery of schistosomes.” 37 (5), 815-816.
 b. PAN, C., KAUFMAN, E. H. & HUNTER, III, G. W., 1951.—“A technique for infecting small mammals with *Schistosoma japonicum*.” 37 (5), 817-819.

(228a) A perfusion apparatus for the recovery of schistosomes from small mammals is illustrated and described. It is a further modification of the technique of Yolles *et al.* which was based on that originally devised by Faust and Meleney, and enables the experienced worker to recover all the *Schistosoma japonicum* from an infected mouse or hamster in about one to one and a half hours. R.T.L.

(228b) For schistosome experiments on the effectiveness of protective ointments and for immunological studies on small mammals the procedure recommended consists of shaving the back, neck and flanks of the experimental animal followed by anaesthesia and immobilization for half an hour over a watch glass containing cercariae. R.T.L.

229—*Journal de Médecine de Lyon.*

- a. MOURIQUAND, G., ROMAN, E. & COISNARD, J., 1951.—“Essai de traitement de l'oxyurose par la pipérazine.” 32 (748), 189-195.

(229a) Following preliminary trials on mice, Mouriquand, Roman & Coisnard report that piperazine hydrate is very effective against *Enterobius vermicularis* in children and is non-toxic. Of the various doses which were tested, the most satisfactory appeared to be a total of 0.1 gm. per year of age per day, given in three doses, repeated on seven successive days, supplemented by two suppositories of 0.1 gm. of the same drug per day. The substance apparently acts principally on the gravid female *Enterobius* and the seven-day course may safely be repeated at weekly intervals if necessary. Piperazine hydrate followed by a saline purgative (which is unnecessary for enterobiasis) was also found to be lethal to *Ascaris lumbricoides* though not to *Trichuris trichiura*. P.M.B.

230—Journal Médical Libanais.

- a. AZIM, M. A., 1951.—"Bilharziasis and its management." 4 (1), 8-15.

(230a) Abdel Azim emphasizes the significance of schistosomiasis as the cause of mortality, morbidity and loss of productive power and briefly summarises laboratory methods of diagnosis. Whatever the cost, irrigation schemes should always be safeguarded by proper sanitary and snail control. Treatment and health education must go hand in hand with other measures of control and treatment units must be taken to the villagers and even to their houses. R.T.L.

231—Journal of the Ministry of Agriculture. London.

- a. ANON., 1951.—"Potato root eelworm: tuber washing trials." 58 (6), 297-298.
b. STONE, L. E. W., 1951.—"Potato root eelworm under glass in Somerset." 58 (8), 391-394.

(231a) Officials of the Ministry of Agriculture have tested the efficiency, in removing *Heterodera* cysts from potatoes, of an experimental washing machine designed to wash sugar-beet free from dirt. The main components of the machine are two revolving cylinders, the first having one end immersed in flowing water, the second provided with very strong water jets. The potatoes were almost but not completely freed from cysts. The risk of damage increased with improved efficiency and in the case of a susceptible variety a substantial increase of dry rot might follow. It is concluded that the washing procedure is not an economical practice and that attention should be concentrated on fumigation to kill the cysts. R.T.L.

(231b) Stone has surveyed 51 glasshouse holdings in Somerset in 1948-49, and a further 54 in 1949-50, to ascertain the prevalence of *Heterodera rostochiensis*. He shows that one nursery in eight and one glasshouse in ten have cyst densities above 0.5 per gm. of soil, and are thus likely to be suffering loss from eelworm. The main centres are around Frome, Radstock, Bath and Keynsham. Eelworm egg-counts from seven glasshouses, in which D-D mixture had been used, showed a three-fold increase in terms of eggs per gm., the factor varying from 1.5 to 9.45. The problem seems worst in moderate-sized holdings: in large holdings steam sterilization is frequent, while in small holdings the soil is often changed. B.G.P.

232—Journal of Parasitology.

- a. SCOTT, J. A., MACDONALD, E. M. & Terman, B., 1951.—"A description of the stages in the life cycle of the filarial worm *Litomosoides carinii*." 37 (5, Sect. 1), 425-432.
b. MILLEMANN, R. E., 1951.—"*Echinocephalus pseudouncinatus* n.sp., a nematode parasite of the abalone." 37 (5, Sect. 1), 435-439.
c. BAILEY, W. S., 1951.—"Host-tissue reactions to initial and superimposed infections with *Hymenolepis nana* var. *fraterna*." 37 (5, Sect. 1), 440-444.
d. ALICATA, J. E., 1951.—"Effects of roentgen radiation on *Trichinella spiralis*." 37 (5, Sect. 1), 491-501.
e. CABLE, R. M. & KUNS, M. L., 1951.—"The trematode family Microphallidae with the description of *Carneophallus trilobatus* gen. et sp.nov., from Mexico." 37 (5, Sect. 1), 507-514.

(232a) *Litomosoides carinii* passes through four larval stages in its life-cycle as in other groups of nematodes. In the vector, *Bdellonyssus bacoti*, the first moult occurs at about the 9th day and the second at about the 13th day at 18-24°C. The third which is described for the first time is completed on the 8th or 9th day after infection of the definitive host and the fourth and final moult occurs 24 or more days after infection. R.T.L.

(232b) *Haliotis corrugata* in Southern California is heavily parasitized by a larval nematode now described as *Echinocephalus pseudouncinatus* n.sp. It encysts in the foot and measures 18.64 mm. in length. The head bulb has 6-6½ rows of hooks with 40-50 hooks per row, thus resembling *E. uncinatus*. The genus already contains four definite species: *E. uncinatus*, *E. southwelli*, *E. multidentatus* and *E. spinosissimus*. *E. striatus* is

a *nomen nudum*. The original specimen of an *Echinocephalus* found in the gonad of *Arbacia punctulata* by Van Cleave, and tentatively assigned by Hopkins to *E. uncinatus* has been re-examined by Millemann and is identified with *E. pseudouncinatus*.
R.T.L.

(232c) A comparative study of the histology of the intestinal wall of mice experimentally fed with eggs of *Hymenolepis fraterna* on two occasions shows that on the second occasion most of the oncospheres fail to penetrate the mucosa. This protective resistance develops within 12 hours but it does not interfere with the development of the oncospheres which had become established after the first infection. There is also a second phase in the immunity response, viz., an accelerated host-tissue response capable of overcoming the few oncospheres which have succeeded in entering the tunica propria of the villi.
R.T.L.

(232d) Laboratory tests show that roentgen radiation in sufficient amount kills encysted trichinae in meat, but the extremely high amount required and the difficulties of its application to large quantities of meat render its commercial use questionable at present. After dosage of 10,000 r the larvae failed to reach maturity or to produce young in susceptible hosts. After 15,000–20,000 r, a few reached maturity in the intestine but none did so after 30,000 r. Although they developed during the first 48 hours, they were then all eliminated. At 100,000–600,000 r, some were found alive in the intestinal tract up to 24 hours, but none after 48 hours. All lost power to establish themselves and to develop in the host after 700,000 r and were eliminated within 24 hours. The trichinae show no recovery from the effects of radiation when refrigerated afterwards for one month and fed experimentally. Irradiated *Trichinella* showed stunted growth, cuticular thickening, degeneration of the ovary and inability of the eggs to develop.
R.T.L.

(232e) The occurrence of microphallid trematodes in raptorial birds is unusual. Cable & Kuns describe a small form named *Carneophallus trilobatus* n.g., n.sp. in *Buteo magnirostris griseocauda*. *Spelotrema pseudogonotyla* is transferred to the new genus which is distinguished from all other microphallids by the presence of a lobed male papilla. A diagram sets down the authors' concept of the phylogeny of the Microphallidae and the derivation of the copulatory organs in the various genera. The family characters are re-defined to include the genera of Maritremitidae although these possess a cirrus sac. The morphology and life-histories of the family Microphallidae justify its inclusion in the superfamily Plagiorchioidea.
R.T.L.

233—Journal of Pediatrics.

- a. BEHRER, M. R., 1951.—"Hypereosinophilia with eosinophilic granuloma of the liver associated with *Ascaris* infestation." 38 (5), 635–639. [Discussion pp. 639–640.]

(233a) Laparotomy on a child 15½ months old with fever, hepatomegaly and an eosinophilia of 20%–53% showed a diffusely nodular liver. The nodules were yellow-white, slightly raised and measured 0.5–3.0 mm. On microscopical examination of a triangular portion of the liver, small whitish areas spread throughout the tissue were seen. There was patchy infiltration with eosinophils associated with a granulomatous reaction. Numerous giant cells were present. Larvae of *Ascaris lumbricoides* were found in the sections. The bone marrow showed hyperplasia of the eosinophilic elements with normal maturation. In the discussion Klingberg suggested that the mechanism producing these nodules may be a hyperergic tissue response caused by the presence of antigen-producing larvae in the liver, lungs and other organs.
R.T.L.

234—Journal of Pharmacy and Pharmacology. London.

- a. QAZILBASH, N. A., 1951.—"Santonin—its detection and estimation." 3 (2), 105–111.
b. WENZEL, D. G. & GIBSON, R. D., 1951.—"A study of the toxicity and anthelmintic activity of *n*-butylidene chloride." 3 (3), 169–176.

(234a) Santonin was discovered by Kahler and by Alms independently in 1830 and

their papers were published simultaneously although Kahler had sent in his paper three months earlier than Alms. The name "Santonin" proposed for the newly discovered active principle of Levant wormseed by Oberdorfer was taken from "Santonion" used by Galen, Pliny and Dioscorides. It was first prepared commercially by Merck in 1832 and was extracted from the fresh leaves and unexpanded flower heads of santonin-containing species of *Artemisia* which have a mild camphor-like aroma. The genus contains a very large number of species of which only a few contain santonin. Some of the santonin-bearing species have a much higher santonin content than others, and there is a great variation in the santonin content of the same species when grown in different localities. Potassium methoxide is a reliable qualitative test for distinguishing the santonin-containing species. Qazilbash gives a detailed account of a new gravimetric method by which santonin can be estimated without loss.

R.T.L.

(234b) Wenzel & Gibson have investigated the acute and chronic toxicity of carbon tetrachloride, tetrachlorethylene and *n*-butylidene chloride when given orally to mice, and also their anthelmintic properties against *Ascaris* and earthworms *in vitro*. The differences between the LD₅₀ of these three was found to be within the range of experimental error; both carbon tetrachloride and tetrachlorethylene caused more damage to the liver than did *n*-butylidene chloride. Against *Ascaris* the anthelmintic action of *n*-butylidene chloride was less than that of carbon tetrachloride but greater than that of tetrachlorethylene. Earthworms were unsatisfactory as experimental animals.

S.W.

235—Klinicheskaya Meditsina. Moscow.

- a. YAKOVLEV, A. A. & TRAVIANSKAYA, A. V., 1951.—[Roentgen diagnosis of cardiac echinococcosis.] 29 (2), 49–52. [In Russian.]

236—Lancet.

- a. SARKIES, J. W. R., 1951.—"Ophthalmoscopic detection of microfilaria of *Onchocerca volvulus*." Year 1951, 1 (6666), 1205–1206.

(236a) Sarkies has compared the results obtained in the diagnosis of ocular onchocerciasis by means of a slit-lamp and an ophthalmoscope. His observations were made on 111 native schoolchildren and 204 industrial workers in the lower Volta district of the Gold Coast. Of the 315 patients examined, 188 showed microfilariae in skin smears, 20 by ophthalmoscopy alone, 34 by ophthalmoscopy and slit-lamp and one with the slit-lamp alone; 28.6% of those with positive skin smears showed microfilariae in the aqueous humour. He is of the opinion that the ophthalmoscope has considerable advantages in rural areas and for large scale surveys but that the slit-lamp is to be preferred for minute examinations.

S.W.

237—Lebensmitteltierarzt. (Supplement to Deutsche Tierärztliche Wochenschrift.)

- a. SCHÖNBERG, F., 1951.—"Zur möglichst sicheren Feststellung von Trichinen der verschiedenen Entwicklungsstadien mit Hilfe von Trichinoskopen." 2 (9), 141–143.
- b. PETERS, W., 1951.—"Stellungnahme zu Vorschlägen für eine Änderung des Fleischbeschaugesetzes und der Ausführungsbestimmungen." 2 (10), 154–157.
- c. FROEHNER, 1951.—"Eine Erhebung über die Trichinenfunde seit 1945 im Lande Niedersachsen." 2 (10), 158.
- d. SCHÖNBERG, F., 1951.—"Zur Bedeutung des Phasenkontrastverfahrens für die Trichinenschau." 2 (11), 172–173.

(237a) Schönberg describes and illustrates a new trichinoscope with magnifications of 45 and 75 diameters. A low voltage 100 watt lamp, which can be suitably adapted to both magnifications, provides the illumination.

A.E.F.

(237b) In the course of a series of comments on suggestions put forward by the German Abattoir Association for revision of the meat inspection laws, Peters expresses the view that pigs' feet should not be generally exempted from *Trichinella* inspection. If muscular substance is present in significant amounts inspection should be carried out. A.E.F.

(237c) Froehner reports the following cases of *Trichinella* infection in animals in Lower Saxony since 1945: four badgers, eight foxes, four pigs, one wild pig. *Trichinella* was also found in several sides of American bacon in 1948. A.E.F.

(237d) Schönberg draws attention to the superiority of phase contrast microscopy over the usual light field method used in *Trichinella* inspection. All stages of *Trichinella* larvae, including unrolled or half-rolled larvae which are only seen with difficulty by other methods, stand out clearly against muscle fibres and other tissues. A series of photomicrographs brings out the good results obtained by phase contrast. A.E.F.

238—Liječnički Vjesnik. Zagreb.

- a. FERLUGA, C. & FALIŠEVAC, J., 1951.—"Prilog poznavanju trihinoze u Jugoslaviji." 73 (2 3), 25-29. [English summary p. 60.]

(238a) Trichinosis in Yugoslavia is a very rare disease. Hitherto only two small epidemics and some isolated cases have been reported. In 1942 two cases, the first known in Croatia, were treated in the Fever Hospital in Zagreb. A third case was seen in 1950. R.T.L.

239—Lingnan Science Journal.

- a. CHEN, H. T., 1951.—"*Stictodora manilensis* and *Stellantchasmus falcatus* from Hong Kong, with a note on the validity of other species of the two genera (Trematoda: Heterophyidae)." 23 (3), 165-175. [Chinese summary p. 175.]
- b. CHEN, H. T. & HSU, P. K., 1951.—"Schistosomiasis in a newly discovered endemic center, Szechuhsien and adjacent areas, Kwangtung Province." 23 (3), 181-199. [Chinese summary p. 199.]
- c. CHIANG, C. P., 1951.—"A comparative study of two species of *Encyclometra* metacercariae and their development in experimental hosts (Trematoda: Plagiorchiidae)." 23 (3), 201-215. [Chinese summary p. 215.]

(239a) *Stellantchasmus falcatus* and *Stictodora manilensis* were found in kittens which had been fed on cysts from *Mugil cephalus*. Chen's specimens of *S. manilensis* differ from the original descriptions from the Philippines in that the seminal vesicle has three sacculations separated by short tubes and the eggs measure only 0.025-0.026 mm. by 0.014-0.015 mm. *S. hainanensis* is a synonym of *S. manilensis*, and *S. lari* and *S. mergi* are probably identical with *S. sawakinensis* or *S. guerreroi*. There is a key to the five species of *Stictodora* and their characteristics are tabulated. The structural details of *Stellantchasmus falcatus* as given by various authors are also tabulated and in Chen's opinion this is the only valid species of the genus. *Stictodora manilensis* has been reported from dogs and cats but *Stellantchasmus falcatus* has been obtained experimentally in man as well as in dogs, cats and mice. Although Yamaguti considered *Cornatium* to be identical with *Stictodora*, Chen favours its retention. R.T.L.

(239b) Three endemic centres of schistosomiasis japonica have been discovered at the Luk-Pok Tso-Tong, Ngoi-Fung Heung and Luk-Wo Heung in Szechuhsien and Sanshuihsien, Kwangtung Province, China. The incidence of infection varied from 16.71% to 51.92%. In *Oncamelania* sp. found in the canals, rice-fields and marshes the infection varied from 0.78% to 11.86%. Dogs and buffaloes were also infected. It is probable that over 100,000 people in the Province have the disease. R.T.L.

(239c) Chiang describes and compares the metacercariae of *Encyclometra koreana*, found encysted in the skeletal muscles of three species of frogs, viz., *Ooeidozyga lima* (90%), *Rana rugulosa* (66.7%) and *R. limnocharis* (33.3%) at Canton, and those of *E. asymmetrica*

which occurred in the muscles of the paradise fish, *Macropodus opercularis*. Adults of both species were obtained by feeding the metacercariae to the lizard *Takydromus sexlineatus meridionalis*. It is remarked that although the establishment of *Encyclometra* as a genus is almost entirely dependent on the position of the uterus this is subject to variations in *E. koreana* and is affected by mounting. Attention is drawn to the presence of two groups of cephalic glands in both species studied. R.T.L.

240—M.S.C. Veterinarian. Michigan State College.

- *a. FAGAN, R., 1951.—"Parasites of animals transmissible to man." 11 (3), 133-138.

241—Maryland Horse.

- *a. BOUGHTON, D. C., 1951.—"Phenothiazine controls strongyles." 16 (8), 22-25.

242—Médecine Tropicale. Marseilles.

- a. PAILLAS, J. E. & TAMALET, J., 1951.—"Les kystes hydatiques du cerveau. (A propos de deux cas observés chez l'enfant)." 11 (1), 89-100.

243—Medical Journal of Australia.

- a. SUSMAN, M. P., 1951.—"Lobectomy for hydatid disease." 38th Year, 1 (11), 400-403.

244—Medicamenta. Madrid.

- a. ARCOS PORRAS, P. DE, 1951.—"Un caso raro de quiste hidatídico." 9 (193), 29.
b. BOSCH MILLARES, J., 1951.—"Parasitología animal de Gran Canaria." 9 (195), 124-126.
c. CALVO MELENDRO, J., 1951.—"A propósito del caso de quiste hidatídico en un conejo." 9 (195), 127.

(244a) Arcos Porras diagnosed as hydatid a cyst found in the neck of a wild rabbit in the Alcañizas Mountains, Badajoz, Spain. In the "sand" removed from the cyst he identified "*Echinococcus granulosus* with its three suckers and double crown of hooks, and a great many eggs". P.M.B.

(244b) Bosch Millares reports that 60% of the children of the poorer classes in Gran Canaria, Canary Islands were infected with *Ascaris* and approximately the same number with *Enterobius*. *Taenia saginata* occurred in 13% of the population and *T. solium* in 8%. Hydatid was uncommon. Three cases of infection with "*Filaria sanguinis hominis major*" or *Loa loa* are reported, one showing an eosinophilia of 83%. It is pointed out that there is a great deal of communication between the Canary Islands and Africa. P.M.B.

(244c) Referring to Arcos Porras' claim to have found a hydatid cyst in the neck of a rabbit [see abstract No. 244a above], Calvo Melendro suggests that, in view of the unlikelihood of such an occurrence, the cyst was probably a *Cysticercus pisiformis* or *Coenurus serialis*; he suggests that the rabbit might have been bitten on this cyst by a dog and that *Echinococcus granulosus* eggs might have been accidentally introduced into the cyst in this way. P.M.B.

245—Medicina Colonial. Madrid.

- a. MATILLA, V., APARICIO GARRIDO, J. & PRIETO LORENZO, A., 1951.—"Estudios sobre anquilostomiasis. II. Aportación a la clínica de la enfermedad." 17 (2), 117-151.
b. DÍAZ MARÍN, J. & IRIGOYEN RAMÍREZ, A., 1951.—"Un nuevo caso de hallazgo coprológico de huevos de *Fasciola*." 17 (2), 164-166.

(245a) Matilla *et al.* give a lengthy description of the symptomatology, pathological changes and diagnosis of hookworm disease, based on their own study of 102 cases supplemented by a review of the literature. There is a bibliography of 69 references. P.M.B.

(245b) The finding of many eggs of *Fasciola* and a few of *Trichuris* in the faeces of a patient at Tetuán, Morocco is reported. The incidence of *Fasciola* infection in the vicinity is, in pigs 2%, in sheep 40%, in cattle 21% and in goats 5%.
P.M.B.

246—Medycyna Weterynaryjna.

- a. JANOWSKI, B., 1951.—"Pastwiskowe schorzenia zwierząt i im zapobieganie." 7 (5), 325-329; (6), 404-409.
- b. GRABDA, E., 1951.—"Ściegorza (*Ligula intestinalis* L.) i jej znaczenie dla gospodarki rybnej." 7 (6), 377-378.
- c. PROST, M., 1951.—"Badania nad fauną pasożytów szczupaków woj. lubelskiego." 7 (7), 452-455. [English & Russian summaries pp. 454-455.]
- d. STANSKI, F. & RUBAJ, B., 1951.—"Enzootyczna nagła śmierć świń." 7 (8), 527-530.
- e. ZIELIŃSKI, J., 1951.—"Próby zastosowania odczynu alergicznego śródskórno-powiękowego przy diagnostyce pasożytów u koni." 7 (8), 541-542.
- f. SZAFIARSKI, J. & ZIELIŃSKI, J., 1951.—"Rys historyczny czynnego i biernego uodpornienia zwierząt przeciwko chorobom pasożytniczym." 7 (9), 581-586.
- g. ZIELIŃSKI, J., 1951.—"Syngamosis." 7 (9), 594-597.

(246a) Janowski in this essay on grazing pastures as sources of animal diseases, and their prevention, includes those caused by helminth parasites.
C.R.

(246b) Grabda reports the occurrence and intensity of infestation of *Ligula intestinalis* in fishes in the lakes of Pomorze (Poland) where in some cases the incidence was up to 50%. He outlines the life-cycle of the parasite and describes the symptoms of the disease. Adult *L. intestinalis* occurred in a domestic duck from the village at the lake where fish were heavily infested but Grabda was unable to infect ducks with *Ligula* plerocercoids. In his opinion infected fish should not appear on the market but, in the absence of emaciation, should be used for canning.
C.R.

(246c) During her investigations into the intensity of parasitic infections of pike (*Esox lucius*) in the artificial ponds and the rivers and lakes during spring and autumn in the Lublin Palatinate, Prost identified *Ancyrocephalus monenteron*, *Azygia lucii*, *Phyllobothrium folium*, *Triaenophorus nodulosus*, *Anisakis mucronata* and *Acanthocephalus lucii*. The only species found repeatedly in all waters was *Ancyrocephalus monenteron*. The artificial collections of water were more frequently infested than natural waters. In view of the numerous cases of *Diphyllbothrium latum* in other parts of Poland, it is interesting that the author did not find any larvae of this tapeworm.
R.T.L.

(246d) The possible causes of enzootic sudden death of pigs are discussed. The possible role of *Strongyloides suis*, which commonly occurs in pigs in Poland, is mentioned among the various suggestions made.
C.R.

(246e) Zieliński used the intradermo-palpebral test in the diagnosis of helminths in two groups of horses, one infected with *Parascaris equorum* and the other with strongyles. Comparison of the results obtained using 0.1-0.2 ml. of antigen prepared from these helminths, with those obtained from microscopic examination of the faeces showed that in the *Parascaris* group 34.7% were compatible, 8.4% were doubtful and 56.9% were incompatible; in the strongyle group 59.2% were compatible, 16.5% were doubtful and 24.3% were incompatible.
C.R.

(246f) This is a review of the literature on the active and passive immunization of animals against parasitic diseases.
C.R.

(246g) Zieliński reports the occurrence of *Syngamus trachea* in western Poland where it caused great losses in turkeys and chickens in the years 1945, 1947 and 1950. He reviews the literature on the clinical aspects of the disease.
C.R.

247—Mémoires de l'Académie de Chirurgie. Paris.

- a. ASTÉRIADÈS, T., 1951.—"Thoracotomie en plèvre libre et extirpation des kystes hydatiques du poulmon. Opération en un temps." 77 (4/5), 140-141.

248—Mémoires de l'Institut Royal des Sciences Naturelles de Belgique.

- a. SCHUURMANS STEKHOVEN, Jr., J. H., 1951.—"Nématodes saprozoaires et libres du Congo Belge." Série 2, Fasc. 39, 79 pp.

(248a) Schuurmans Stekhoven reports on some collections of free-living and saprozoic nematodes made in the Belgian Congo. Among the short descriptions are 23 species new to science. These are *Dorylaimus brevispicatus* n.sp., *D. digiticaudatus* n.sp., *D. stylidens* n.sp., *D. acutiens* n.sp., *D. aphalatus* n.sp., *Xiphinema brevicaudatum* n.sp., *X. effilatum* n.sp., *X. digiticaudatum* n.sp., *Amphidelus effilatus* n.sp., *Achromadora longiseta* n.sp., *Trischistosoma conicaudatum* n.sp., *Prismatolaimus tenuicaudatus* n.sp., *Tylenchus cafeicola* n.sp., *Aphelenchoides elongatus* n.sp., *Diplogaster breviflagellum* n.sp., *D. fostidens* n.sp., *D. obscuridens* n.sp., *Loxolaimus brevicauda* n.sp., *Rhabditis parapapillosa* n.sp., *R. longespicalosa* n.sp., *Rhabditoides flagellicauda* n.sp., *Pararhabditis flagellicaudatus* n.sp. and *Teratocephalus brevicaudatus* n.sp. J.B.G.

249—Mikrokosmos.

- a. HEUSCHMANN, O., 1951.—"Fischkrankheiten und Fischparasiten." 40 (11), 259-264.

(249a) Among the causative agents of diseases in fish, Heuschmann includes *Dactylogyrus*, *Gyrodactylus* and the larvae of *Diplostomum spathaceum*. P.M.B.

250—Military Surgeon.

- a. HUNTER, III, G. W., RITCHIE, L. S., PATTERSON, K. & MUNIZ, L. L., 1951.—"A comparison of Triton-NE with QM laundry detergent as suggested for the AMS III technique." 108 (5), 424-426.

(250a) Hunter *et al.* have investigated the possibility of substituting QM laundry detergent for Triton-NE in the acid, sodium sulphate, ether technique for faecal examinations. Examination of 61 fresh and 15 preserved samples, all known to contain a number of different helminth eggs, showed Triton-NE to be more efficient in the recovery of eggs of *Schistosoma japonicum*, *Ascaris lumbricoides*, *Trichuris trichiura*, *Trichostrongylus* sp., *Clonorchis sinensis*, *Paragonimus westermani*, *Enterobius vermicularis* and hookworm. s.w.

251—Mitteilungen aus der Biologischen Zentralanstalt für Land- und Forstwirtschaft.

- a. SCHAEFFENBERG, B., 1951.—"Untersuchungen über die Bedeutung der Enchytraeiden als Nematodenfeinde." 70, 55-58.

(251a) Schaerffenberg describes an experiment carried out to determine whether Enchytraeids are effective in controlling nematode infection in sugar-beet. Sugar-beet plants were placed singly in pots buried in an experimental plot. When the plants were well developed nematode cysts were added to each pot in varying numbers to ensure light, medium and heavily infected plants. As soon as the plants showed obvious signs of nematode disease, 150-200 Enchytraeids of the genus *Fridericia* were added to each of half the pots, the remainder acting as controls. Plants and surrounding soil were examined each week and nematode and Enchytraeid counts taken. About half the plants began to recover during the first and second weeks while Enchytraeids increased and nematodes remained constant: by the third week the nematode count decreased but the Enchytraeid count increased until the nematodes disappeared. The plants continued to recover rapidly and after six weeks could not be distinguished from normal healthy sugar-beets. The control plants died off completely. Schaerffenberg believes that only first and second-stage nematode larvae

(i.e. those within the roots) are destroyed by the oligochaet larvae which enter the roots, give off digestive secretions in which the nematode larvae dissolve and are then sucked up. Nematodes living outside the roots are not affected neither do adult Enchytraeids attack nematode larvae. Since rich humus soils (such as those which are green-manured) are known to be well populated with Enchytraeids, they are unlikely to have heavy nematode infections and are thus suited to sugar-beet culture.

A.E.F.

252—Mycologia.

- a. DRECHSLER, C., 1951.—“Various zoöpagaceous fungi subsisting on protozoans and eelworms.” 43 (2), 161–185.

(252a) Drechsler describes several species of zoöpagaceous fungi parasitic on eelworms or protozoa including *Cochlonema calosperma* n.sp., *Aplectosoma microsporum* n.g., n.sp., the sexual stages of *Acaulopage lophospora*, and an unnamed species of *Eurycanale*. He also describes and figures some stages of an unnamed and undetermined member of the Zoöpagaceae.

J.B.G.

253—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes.

- a. MEYL, A. H., 1951.—“Die künstliche Infektion mit dem Kartoffel- und Rüben nematoden und die Färbung der Parasiten in situ.” 3 (9), 134–136.

(253a) Meyl describes a technique (based on those of Berliner & Busch, 1914, and Reinmuth, 1929) for growing plants from seed or from potato eyes on sterile agar plates. He gives his method for inoculating such plants with larvae of the sugar-beet or potato root eelworms and describes how roots inoculated in this way may be stained by the usual acid fuchsin or cotton blue in lactophenol method for demonstrating the presence of the parasites.

M.T.F.

254—Nature. London.

- a. SMYTH, J. D., 1951.—“Egg-shell formation in trematodes and cestodes as demonstrated by the methyl or malachite green techniques.” [Correspondence.] 168 (4269), 322–323.

(254a) Smyth finds that methyl green and malachite green show marked and specific affinity for the material forming the egg shells of certain trematodes and pseudophyllidean cestodes. That the shell material is produced by the vitellaria, not by the “shell” gland, has been confirmed by the use of these dyes. The vitelline cells loaded with shell globules meet the ova in the lower part of the uterus and release the contained globules which fuse to form the typical shelled egg. In the cyclophyllidean cestodes, such as *Taenia saginata*, there is no true egg shell, the so-called shell being merely a thickened embryophore. It was therefore expected that the vitelline cells would contain no shell material and would act only as yolk producers. This is confirmed by the staining technique described above. It is suggested that the terms “vitelline glands” and “vitellaria” should be restricted to glands that produce only yolk, i.e. in the Cyclophyllidea, and that a new term, “vitellalocal glands”, should be applied to trematodes and pseudophyllid cestodes. He agrees with the modern tendency to replace the term “shell gland” by “Mehlis’ gland” until its function has been established.

S.W.

255—New Zealand Medical Journal.

- a. BLAKELY, E. R. & REID, J. D., 1951.—“Hydatid disease. Report of an unusual case.” 50 (275), 44–45.
b. GIFFORD, 1951.—“A case of traumatic rupture of an intraperitoneal hydatid cyst.” 50 (275), 61–62.

256—Nordisk Medicin.

- a. VARTIAINEN, O., 1951.—“Maskproblemet i Finland.” 45 (10), 343-344. [English summary p. 344.]

(256a) About 20% of the inhabitants of Finland are carriers of *Diphyllbothrium latum*. Vartiainen discusses prophylactic measures and treatment and points out that extract of filix mas may be dangerous in some cases. S.B.

257—Nordisk Veterinärmedicin.

- a. KOFFMANN, M. & OLSSON, L., 1951.—“Hastens inälvparasiter och deras bekämpande.” 3 (4), 312-326. [English & German summaries p. 326.]

(257a) Koffmann & Olsson give an account of the most important intestinal parasites of the horse and outline the best methods of treatment. They describe an experiment, involving 116 horses, in the treatment of strongylosis by means of phenothiazine. The dosage given was 2 gm. daily for 20 days, twice repeated after ten day intervals. There were no toxic effects and the treatment, judged by faecal examination and the general condition of the horses, was very successful. An account is also given of some promising experiments with sodium fluoride in the treatment of *Parascaris equorum* infection. A.E.F.

258—North American Veterinarian.

- a. MATTHIS, M. H. & CLARK, Jr., W. B., 1951.—“Parasites of live stock.” 32 (8), 537-539.

259—Pastoral Review. Melbourne.

- a. FETHERS, G., 1951.—“Worms in yearlings.” 61 (3), 262-263.

260—Phytopathology.

- a. DALLIMORE, C. E. & THORNE, G., 1951.—“Infection of sugar beets by *Ditylenchus destructor* Thorne, the potato rot nematode.” 41 (10), 872-874.
 b. LOWNSBERRY, B. F., 1951.—“Larval emigration from cysts of the golden nematode of potatoes, *Heterodera rostochiensis* Wollenweber.” 41 (10), 889-896.
 c. FEDER, W. A., 1951.—“Yellow bud blight, a foliar nematode disease of Vanda Miss Joaquim orchids.” [Abstract of paper presented at the 33rd Annual Meeting of the Pacific Division of the American Phytopathological Society, Los Angeles, June 19-21, 1951.] 41 (10), 938-939.

(260a) Dallimore & Thorne describe and figure the symptoms of infection by *Ditylenchus destructor* of sugar-beet under experimental conditions. The eelworms enter the sugar-beet near the crown and cause a dry honeycombed appearance of the tissue which becomes brown; eventually the beet is destroyed. Circumstantial evidence suggests that it occurs also in the field. J.B.G..

(260b) Lownsberry describes a method of assaying *Heterodera* cysts by the use of weighed batches and a sampling technique for enumerating the liberated larvae. Although the stimulating efficacy of potato root diffusate decreases as leaching continues, he finds it possible to collect several litres of diffusate from a single plant. Potency of the diffusate increases with size of root system but no size effect is discernible. A dormancy period during the winter restricts the use of his techniques to the late spring, summer and early autumn. Attempts to break this dormancy were unsuccessful. As a result of repeated application of potato root diffusate to infested soil he is able to effect a 94% reduction in larval emigration potential on subsequent treatment of the contained cysts with potato root diffusate. D.W.F..

(260c) Feder reports severe damage to the flower buds of the orchid Vanda Miss Joaquim caused by a nematode morphologically similar to *Aphelenchoides ritzema-bosi* and having a thermal death point of 126°F. and host range similar to that of the chrysanthemum eelworm. The nematodes live between the bud-scales and in the lumen of the buds and only penetrate the tissues to assume a feeding position. Very good control was

obtained by weekly spraying with parathion at 2-4 lb. of 25% wettable powder per 100 gal. of water plus B-1956. Laboratory tests indicated that kill was due to the fumigant action of parathion. Sodium selenate also gave a good control.

M.T.F.

261—Plant Disease Reporter.

- a. GOTO, S. & GIBLER, J. W., 1951.—“A leaf gall forming nematode on *Calamagrostis canadensis* (Michx.) Beauv.” 35 (4), 215-216.
- b. TARJAN, A. C., 1951.—“An explanation of the revision of the root-knot nematodes, *Meloidogyne* spp.” 35 (4), 216.
- c. TARJAN, A. C., 1951.—“Observations on nematodes associated with decline of ornamental plantings.” 35 (4), 217-218.
- d. McBETH, C. W., 1951.—“Observations on repeated applications of D-D (dichloropropene-dichloropropane).” 35 (5), 243-245.
- e. ATKINS, Jr., J. G., 1951.—“Root-knot nematodes on peas and vetch in Louisiana.” 35 (7), 323.
- f. MACHMER, J. H., 1951.—“Root knot of peanut. I. Distribution.” 35 (8), 364-366.
- g. JEFFERS, W. F., COX, C. E., JEHLE, R. A., WEAVER, L. O., MORGAN, O. D. & MOORE, J. E., 1951.—“Notes on occurrence of some plant diseases in Maryland during 1950.” 35 (8), 385-386.
- h. MARTIN, W. J., NEWSON, L. D. & SCHWEGMANN, J., 1951.—“Nematode root rot of cotton in Louisiana.” 35 (8), 388.

(261a) Goto & Gibler report finding *Anguina graminophila* [*Ditylenchus graminophila*] causing bright yellow-orange-brown galls on the leaves of *Calamagrostis canadensis* grown near St. Paul, Minnesota. The lower surface of the gall is smooth and rounded but the upper has a deep longitudinal furrow. Distortion and twisting of the leaf may result but there is no chlorosis or necrosis of the leaf tissues contiguous with the galls. The galls are figured.

J.B.G.

(261b) Tarjan points out the characters distinguishing the genus *Meloidogyne* from *Heterodera*, viz., the cuticle in *Meloidogyne* females remains soft while in *Heterodera* it becomes tough and forms a cyst. The eggs are deposited in a gelatinous sac and never retained in the body in *Meloidogyne* while at least some are retained in the dead female in *Heterodera*. *Meloidogyne* females have distinctive “fingerprint” patterns round the vulva but those of *Heterodera* have “lace-like” markings and punctations on the cuticle and no “fingerprint” pattern. Females of *Meloidogyne* generally cause characteristic galls in the roots of susceptible plants and are almost enclosed in the tissues at maturity but *Heterodera* females usually cause no gall formation and are largely outside the root at maturity. The stylet of the larva of *Meloidogyne* is about 10μ but is 20μ to 29μ in *Heterodera*. [No mention is made of the males.] Work in progress indicates that snapdragons react differently to infection by different species of *Meloidogyne*.

M.T.F.

(261c) Examinations of soil and root samples have shown the presence of various plant parasitic and other nematodes associated with symptoms of decline in various ornamental plants. Among the genera mentioned are the following: *Meloidogyne* [*Heterodera marioni*], *Pratylenchus*, *Paratylenchus*, *Tylenchorhynchus*, *Tylenchus*, *Diptherophora*, *Dorylaimus*, *Nothotylenchus*, *Helicotylenchus*, *Psilenchus*, *Aphelenchoides*, *Hoplolaimus*, *Xiphinema*, *Hemicycliophora*, *Longidorus*, *Criconemoides*, *Tylencholaimus*, and *Dorylaimellus*. Tarjan says that since the spear in the Tylenchina is known to be used in a few species for feeding on roots of plants it is believed that members of the Dorylaimoidea, which also have spears, are also plant parasites. At the same time he says there is no experimental evidence to support this view.

J.B.G.

(261d) McBeth has for five years injected D-D into the soil of two plots measuring 200 ft. by 60 ft., leaving a third plot untreated. A variety of crops showed no phytotoxic symptoms, but improved growth especially at the higher rate. In the years 4 and 5 no root-knot was found on plants from the treated plots but from the control plot all examined

tomato, melon and tobacco plants were infested. He concludes that, if there is a residual toxic effect, it is far less than eelworm effect. B.G.P.

(261e) Vetches and field peas have usually been considered not to be susceptible to attack from root-knot nematodes but Atkins reports the occurrence of severe galling on the roots of Austrian Winter peas (*Pisum arvense*), and hairy vetch (*Vicia villosa*) on a test plot at Baton Rouge. *V. sativa* roots were only lightly galled. He recommends that where root-knot infections are heavy in summer crops, such as cotton or cucumber, *Pisum arvense* and *Vicia villosa* should not be used as winter rotational crops. T.G.

(261f) Peanuts have generally been considered to be resistant to root-knot nematodes but Machmer shows that there are two species of the genus *Meloidogyne* (root-knot nematode) in the south eastern United States which seriously damage peanuts grown in that region. These are *Meloidogyne hapla* from Pitt County, North Carolina and *M. arenaria* from south-west Georgia in which State peanuts are extensively affected in the lower Chattahoochee River basin. The eelworm causes serious injury and galling to the underground parts of the plant including pods and pod stems and crops of peanuts may be so severely damaged as to be not worth harvesting. Two species of senna or coffee weed, viz., *Cassia occidentalis* and *C. tora* are also severely galled in the roots by *M. arenaria*, and *Indigofera hirsuta*, used as a rotational crop, also becomes seriously galled. *Crotalaria* spp. and *Desmodium* sp. (beggar weed) being immune, can be used as rotational crops and help to reduce infestation. T.G.

(261g) Jeffers *et al.* report on a wide range of plant diseases and infestations affecting crops in Maryland during 1950 and mention the first record of the root-knot nematode, *Meloidogyne hapla*, on Pontiac potatoes. T.G.

(261h) Cotton plants have been found in Louisiana showing more or less extensive brown root lesions with which nematodes are associated. The nematodes were found to be *Pratylenchus leiocephalus*. T.G.

262—Policlinico (Sezione Pratica). Rome.

- a. TIMPANO, P., 1951.—“Di alcune rare complicazioni dell'anchilostomiasi riguardanti il sistema nervoso, l'intestino, le sindromi metaboliche, l'apparato cardiovascolare, l'apparato respiratorio.” 58 (4), 104-108.

263—Proceedings of the Alumni Association of the King Edward VII College of Medicine, Singapore.

- a. SANDOSHAM, A. A., 1951.—“A note on larval worms in fish.” 4 (2), 90-92.
- b. DARANAJ, T. J., 1951.—“Eosinophilic lung. A study of 150 cases seen in Singapore.” 4 (1), Suppl. pp. 1-24; (2), Suppl. pp. 25-36; (3), Suppl. pp. 37-57.

(263a) The flesh of some of the best known edible types of marine fish sold in local Malayan markets is infected with larval helminths. A larval nematode is provisionally referred to *Anisakis salaris*. Larval cestodes belonged to Tetrarhynchidae and Dibothriocephalidae. Although symptoms of acute abdominal pain with prostration were reported in two persons who had eaten large quantities of worm-infected fish 18 hours previously, no symptoms were observed in an experimentally infected monkey. R.T.L.

(263b) Daranaj, after reviewing the available literature on eosinophilic lung, analyses the records of 150 cases seen in Singapore. It occurs there chiefly among the Indian population. Treatment with organic arsenicals resulted in cure. His investigations failed to establish that any locally prevalent intestinal helminth or microfilaria was an aetiological factor. R.T.L.

264—Proceedings of the Entomological Society of Washington.

- a. BURCH, T. A., 1951.—"Onchocerciasis, the blinding filariasis." [Abstract of paper presented at the 605th regular meeting of the Entomological Society of Washington, January 4, 1951.] 53 (2), 114-115. [Discussion p. 116.]

(264a) A brief summary is given of Burch's lecture notes when exhibiting a moving picture of onchocerciasis to the American Association of Economic Entomologists. He does not consider that *O. caecutiens* is distinct from *O. volvulus*. In Yepocapa, *Simulium ochraceum* is considered to be the principal vector. *S. callidum* and *S. metallicum* are also important. Eggs require two to three weeks for hatching and the same period for larval development. The pupal phase requires less than one week. Recovered stained flies indicated a longevity of 85 days and a flight range of more than nine miles. In Guatemala the flies bite in the sun as well as in the shade and indoors during daytime, and at night in well lighted rooms. In the coffee fields shrubs and bushes provide resting places in daytime as do the bases of grass stems at night.

R.T.L.

265—Proceedings of the Helminthological Society of Washington.

- a. KATES, K. C. & GOLDBERG, A., 1951.—"The pathogenicity of the common sheep tapeworm, *Moniezia expansa*." 18 (2), 87-101.
b. ALLEN, R. W. & KYLES, P. M., 1951.—"Tests with a phenothiazine-salt mixture as a growth stimulant for sheep." 18 (2), 102-103.
c. BABERO, B. B., 1951.—"Notes on the trematode genus *Glypthelmins* Stafford, 1905." 18 (2), 103-106.
d. CHRISTIE, J. R. & PERRY, V. G., 1951.—"Removing nematodes from soil." 18 (2), 106-108.
e. FIELDING, M. J., 1951.—"Observations on the length of dormancy in certain plant infecting nematodes." 18 (2), 110-112.

(265a) Kates & Goldberg survey the literature dealing with the pathogenicity of *Moniezia expansa* and give details of their own experimental work of which the results were published only in abstract in 1949 [see Helm. Abs., 18, No. 405cq]. Although heavy infections were induced in 14 lambs by feeding 121 to 411 cysticercoids to each lamb, no injurious effects or any significant retarded growth were observable in comparison with the controls.

R.T.L.

(265b) Allen & Kyles briefly report experiments which indicate that the administration to sheep of a mixture of phenothiazine one part and common salt nine parts does not of itself stimulate their growth and that the effects are due to the anthelmintic action.

R.T.L.

(265c) The history of the genus *Glypthelmins* is briefly reviewed and two alternatives appear possible for correcting the systematics of the group, (i) the creation of a new genus for the South American species or, (ii) emendation of Stafford's original generic definition to include these species. Babero does not feel justified in making any revision until additional material is available for more comprehensive morphological study.

R.T.L.

(265d) For the determination of the abundance, distribution and habits in the soil of those nematode species that feed on the surface of roots without penetrating the tissues, neither sieving nor the Baermann technique as ordinarily employed succeed. Christie & Perry describe and illustrate a technique which successfully combines these two methods.

R.T.L.

(265e) This is the third report on the length of dormancy of nematodes in various infected plants kept at room temperatures at the Salt Lake City station of the U.S. Division of Nematology. The earlier reports were published by Corder (1933) and by McBeth (1937). The results of the examinations of this material in 1949 are tabulated. The body contents of live nematodes gushed out as if under pressure when cut with an eye scalpel whereas

265—Proceedings of the Helminthological Society of Washington (cont.).

- f. HAGEMEYER, J. W., 1951.—"A new stage in the life cycle of the golden nematode *Heterodera rostochiensis* Wollenweber." 18 (2), 112-114.
- g. HILL, C. H., 1951.—"The recovery of encapsulated, infective larvae of *Trichinella spiralis* relatively free of muscle tissue." 18 (2), 114-120.
- h. OLSEN, O. W. & TOLMAN, C. D., 1951.—"*Wellcomeia evaginata* (Smith, 1908) (Oxyuridae: Nematode) of porcupines in mule deer, *Odocoileus hemionus*, in Colorado." 18 (2), 120-122.
- i. SCHILLER, E. L., 1951.—"Studies on the helminth fauna of Alaska. VIII. Some cestode parasites of the Pacific kittiwake (*Rissa tridactyla* Ridgway) with the description of *Haploparaxis rissae* n.sp." 18 (2), 122-125.
- j. TIMM, R. W., 1951.—"A note on the cell inclusions of *Syringolaimus smarigdus* Cobb, 1928." 18 (2), 125-126.

those of dead specimens oozed out only slightly, if at all. *Anguina tritici* was alive after 28 years dormancy and *Ditylenchus dipsaci*, in fullers teasel, *Dipsacus fullonum*, was alive after 23 years, the longest period hitherto reported for this genus. R.T.L.

(265f) When the eggs of *Heterodera rostochiensis* were ruptured by slight pressure on the coverslip, many of the first stage larvae were seen to have moulted. As the larvae moult the prothabidions of the spear develop and annulations appear on the head; the head becomes set off and its sclerotized framework appears and the differentiation of the oesophagus is completed. The first stage cuticle is now completely cast off and the second stage larva completes its development in the egg and is ready to hatch. The life-cycle of *H. rostochiensis* is probably similar to that described by Raski for *H. schachtii*. R.T.L.

(265g) A procedure for the recovery of *Trichinella* larvae and cysts, which is as reliable and more rapid than the digestion technique, consists in placing in a Waring blender and covering with water 10-25 gm. of meat which has been minced or cut into small pieces. The blender is run for about four minutes and the contents are diluted and poured through a 10-mesh screen into a funnel inserted into a large separatory funnel. The screen is washed with fine streams of water from an inverted Buchner funnel connected to a cold-water tap. The washings are collected in the separatory funnel. The fibrous connective tissue on the screen is discarded. After sedimentation for thirty minutes, the stopcock of the funnel is opened and the material collected in a dish to which an N/10 solution of sodium hydroxide is added as a clearing agent; this is searched with a stereoscopic wide field microscope for free or encysted parasites. A table gives the number of larvae recovered from the diaphragm of 13 pigs by this method and by a peptic digestion method. The larvae collected by the new technique seemed to possess greater infectivity than those collected by the digestion method. R.T.L.

(265h) Olsen & Tolman record the occurrence of *Wellcomeia evaginata* of porcupines in two mule deer (*Odocoileus hemionus*) from the Gunnison area of Colorado where the porcupines are heavily infected. R.T.L.

(265i) From 37 Pacific kittiwakes (*Rissa tridactyla*) collected at St. Lawrence Island, Bering Strait, Alaska, *Tetrahelminthium erostre*, *Anomotaenia larina*, *A. micracantha* and *Aploparaksis rissae* n.sp. were obtained. Descriptions and illustrations of the three last species are given. *A. rissae* most closely resembles *A. clerci* and *A. xemae* but the former has hooks of a characteristically different shape and the latter differs in the structure of the cirrus sac, the subspherical shape of the ovary and the greater size of the rostellar hooks. R.T.L.

(265j) The bright green intestinal cell inclusions observed by Cobb in the marine nematode *Syringolaimus smarigdus* are due to pigment from the filamentous green alga which forms a thick felt over the orange alga which encrusts the shell of the common mud snail *Nassa obsoleta* and in which the nematodes occur in great abundance. R.T.L.

265—Proceedings of the Helminthological Society of Washington (cont.).

- k. TINER, J. D., 1951.—“The morphology of *Ascaris laevis* Leidy 1856, and notes on ascarids in rodents.” 18 (2), 126-131.
- l. TURNER, J. H., 1951.—“Counting *Nematodirus spathiger* eggs in sheep dung.” 18 (2), 132-135.
- m. URICCHIO, W. A., 1951.—“Some alcohols and hydrocarbons as nematocides.” 18 (2), 136-140.

(265k) A redescription of Leidy's *Ascaris laevis*, from specimens collected from *Marmota monax*, shows that its nearest relative is *A. columnaris* and that it is not an *A. lumbricoides* or *A. columnaris* which happened to mature in an abnormal host. But specimens of *A. lumbricoides* have also been identified from fox squirrels (*Sciurus niger rufiventer*) by Tiner, who believes that a process of selection towards a shorter and smaller variety would be expected to accompany permanent adaptation of any *A. lumbricoides* progeny to the various wild rodent species which are now known to be occasional hosts. R.T.L.

(265l) If it is desired to count by the direct centrifugal flotation method more than 90% of the eggs of *Nematodirus spathiger* in a sample of sheep dung, Turner finds that the eggs on at least three coverslips from each preparation should be counted in duplicate.

R.T.L.

(265m) Uricchio tested the nematocidal effect of 14 alcohols and eight hydrocarbons against *Rhabditis strongyloides*. Those which proved to be the most toxic were then tested against free larvae, free eggs and a mucoïd egg mass of *Meloidogyne javanica*. The results obtained are tabulated. Of the alcohols, amyl and allyl had the highest nematocidal effect, but 3-hexanol and 2-pentanol had a moderate effect; of the hydrocarbons, allyl acetone, cyclohexyl bromide, cyclohexyl chloride and cyclohexane were the most effective. All these except allyl acetone are beeswax solvents or emulsifiers.

S.W.

266—Proceedings of the Linnean Society of New South Wales.

- a. DURIE, P. H., 1951.—“The paramphistomes (Trematoda) of Australian ruminants. Part 1. Systematics.” 76 (1/2), 41-48.

(266a) Durie has studied the taxonomy of the paramphistomes which occur in the rumen and reticulum of cattle in Australia. He is of the opinion that the species previously identified as *Paramphistomum cervi* is in reality two species, namely, *Ceylonocotyle streptocoelium* and *Calicophoron calicophorum*, and that the species known as *P. cotylophorum* is *P. ichikawai*. A fourth species has been collected but has not yet been identified. Descriptions, illustrated by photomicrographs, of *P. ichikawai*, *Calicophoron calicophorum* and *Ceylonocotyle streptocoelium* are given.

S.W.

267—Proceedings of the Society for Experimental Biology and Medicine.

- a. READ, C. P., 1951.—“Anaerobic glycolysis in fortified cell-free homogenates of tapeworm tissue.” 76 (4), 861-863.

(267a) Read has studied the glycolytic activity of fortified cell-free preparations of *Hymenolepis diminuta*. He used the LePage system as a basis and presents data which support the idea that glycolysis in tapeworms proceeds by processes similar to those in vertebrate tissues.

R.T.L.

268—Proceedings. United States Livestock Sanitary Association.

- a. SPINDLER, L. A., 1951.—“Effect of parasites on swine production.” 54th Annual Meeting (1950), pp. 241-246.

(268a) About 60 million pigs were slaughtered in 1948 under Federal meat inspection in the U.S.A. The loss to the farmer from swine parasites is estimated to have exceeded 75 million dollars. Direct losses are stated to be due to *Ascaris lumbricoides* and *Strongyloides*

ransomi. Indirect losses from ascarids by occlusion of the bile ducts and other lesions of the liver may involve 50% of the livers. Experiments are cited to show the effect on growth and weight of three pigs experimentally infected with *Ascaris* ova. In a recent survey, damage to the liver by *Stephanurus dentatus* was present in from 20%-40% of pigs in the Corn Belt and in 90% in the South. Condemnation of carcasses for pyemia due to generalized infections with *S. dentatus* sometimes reached 10% of condemnations from all causes. R.T.L.

269—Public Health. Johannesburg.

- a. KELLER, P., 1951.—“Sterilisation of sewage sludges.” 15 (1), 11-17.

(269a) Although thermophilic digestion of sewage sludge for a minimum of 24 hours destroys *Ascaris lumbricoides* eggs the method has certain disadvantages. It has been found however that with normally digested sewage sludge as well as raw sewage sludge treated after digestion at mesophilic temperatures for a minimum period of 120 minutes at 55°C., a 100% destruction is usual. As the eggs of *A. lumbricoides* are known to be the most resistant of helminth ova to mechanical and chemical influences, it is considered safe to assume that the viability of other species would also be destroyed. R.T.L.

270—Public Health. London.

- a. MACRAE, J., 1951.—“Human infectious diseases associated with animals.” 64 (10), 192-194.

271—Public Health Reports. Washington.

- a. BOZICEVICH, J., TOBIE, J. E., THOMAS, E. H., HOYEM, H. M. & WARD, S. B., 1951.—“A rapid flocculation test for the diagnosis of trichinosis.” 66 (25), 806-814.

(271a) As Suessenguth & Kline's flocculation test for the diagnosis of trichinosis [for abstract see Helm. Abs., 13, No. 323a] gave some false positive reactions, a new and rapid flocculation test is described. The antigen remains stable for several months. [The technique is too detailed to transcribe here.] R.T.L.

272—Report. Department of Scientific and Industrial Research, New Zealand.

- a. RIGG, T., 1951.—“Cawthron Institute. Tomato investigations.” 25th (1950-51), pp. 73-74.
b. TETLEY, J. H., 1951.—“Nematode parasitism in sheep.” 25th (1950-51), p. 78.

(272a) Steam, chloropicrin, D-D, and a mixture of chloropicrin and D-D gave good growth, relatively high yields and an unusually high percentage of first grade tomatoes in greenhouses at the Cawthron Institute, New Zealand. The tomatoes grown on plots treated with D-D were practically free from the undesirable flavours previously noticed. This is attributed to the higher soil temperatures and better aeration of the soil. Sterizal gave disappointing results. Typical yields per plant were: unsterilized soil, 4.1 lb.; steam, 9.6 lb.; chloropicrin 10 lb.; D-D, 9.5 lb.; chloropicrin and D-D mixture 9.3 lb.; Sterizal, 6.5 lb. The percentage of first grade tomatoes was highest on the unsterilized plot, viz., 64%, and lowest on the Sterizal plot, viz., 44%. In the other treatments the percentage varied from 50% to 55%. R.T.L.

(272b) In a brief progress report from the Massey Agricultural College entitled “Nematode parasitism in sheep”, Tetley mentions as peculiar that mature sheep in the Manawatu district were heavily infected with roundworm parasites during the spring. R.T.L.

273—Revista Brasileira de Biologia.

- a. FREITAS, J. F. TEIXEIRA DE, 1951.—“*Ophidascaris sicki* n.sp. (Nematoda, Ascaroidea).” 11 (3), 255-258.

(273a) *Ophidascaris sicki* n.sp. is described from *Xenodon merremii* from the State of Matto Grosso, Brazil. The number of species of the genus previously known totalled 21.

From 14 of these the new species is differentiated by the size of the spicules which in *O. sicki* measure 0.87 mm. to 0.96 mm.; from *O. labiatopapillosa* by the size of the ova which in the new species measure 0.07 mm. to 0.078 mm. by 0.061 mm. to 0.065 mm.; from *O. radiosa* by the length of the oesophagus, 1.68 mm. to 1.99 mm. in the male and 1.97 mm. to 2.06 mm. in the female, and from *O. gestri* by the position of the vulva which in *O. sicki* is in the posterior half of the body.

R.T.L.

274—Revista Brasileira de Medicina.

- a. ABEN-ATHAR, J., 1951.—“Do mecanismo produtor de elefantíase na filariose (*Wuchereria bancrofti*).” 8 (2), 89-94. [English summary p. 94.]
- b. MEIRA, J. A., 1951.—“Tratamento das verminoses.” 8 (2), 133-136.
- c. BEQUAERT, J. C. & LUCENA, D. T. DE, 1951.—“Introdução no Brasil de duas espécies africanas de caramujos transmissores da esquistossomose—*Bulinus tropicus* (Krauss) e *Biomphalaria alexandrina pfeifferi* (Krauss).” 8 (3), 167-170. [English summary p. 170.]
- d. SOUZA LIMA, J. S., 1951.—“Considerações em torno da infestação esquistossomótica em Ubá e adjacências.” 8 (4), 244-249. [English summary p. 249.]

(274a) Aben-Athar interprets tropical elephantiasis as a local reaction resulting from the presence of *Wuchereria bancrofti* or of its disintegration products. There is a cutaneous hyperaemia, oedema, white cell infiltration, connective tissue degeneration with necrosis and swelling of collagen fibres followed by granulation and cicatrization. He joins those who accept the view that tropical elephantiasis is not the result of a more or less complete interruption of the lymphatic circulation.

R.T.L.

(274b) Meira gives details of the customary dosages and methods of administration of hexylresorcinol, gentian violet, tetrachlorethylene, carbon tetrachloride, oil of chenopodium, extract of male fern, fouadin and anthiomaline.

P.M.B.

(274c) Bequaert & Lucena report the finding for the first time in Brazil of *Bulinus tropicus* and *Biomphalaria alexandrina pfeifferi*, the African vectors of *Schistosoma haematobium* and of *S. mansoni* respectively, in the surroundings of Santos where they were breeding in ditches, and also in ponds in the municipal gardens. Although the time of their introduction into Brazil is unknown, a possible theory is that the original snails may have been transported attached to water barrels on slave-trading ships from Africa, and have become detached when the barrels were refilled at Santos. It is considered that some snails which were described from Santos at an earlier date and ascribed to the genus *Australorbis* were undoubtedly *B. alexandrina pfeifferi*. It is noted that although no cases of schistosomiasis haematobia have been confirmed in Brazil, there have been occasional references to the finding of eggs of *S. haematobium* in Brazilians.

P.M.B.

(274d) Souza Lima discusses the biology of *Schistosoma mansoni* and the various treatments for schistosomiasis, which is thought to be spreading rapidly in the State of Minas Geraes. A study of records at the health centre at Ubá showed that between September 1946 and June 1950, 18 out of 1,505 persons (1.37%) were found by direct faeces examination to be infected. Incidence figures of other helminths obtained by the same method were: hookworm 38.32%, *Ascaris lumbricoides* 70.99%, *Trichuris trichiura* 8.32%, *Enterobius vermicularis* 0.3% and tapeworms 1.37%. These figures are compared with those which Silva Soares obtained by a concentration method in Visconde de Rio Branco.

P.M.B.

275—Revista Clínica Española.

- a. ALÉS REINLEIN, J. M., ARJONA TRIGUEROS, E. & OBRADOR ALCALDE, S., 1951.—“Contribución al diagnóstico de la cisticercosis del neuroeje por el estudio del líquido cefalorraquídeo.” 40 (1), 12-18. [English, French & German summaries p. 18.]

(275a) In cases of cerebrospinal cysticerciasis, eosinophilia in the spinal fluid and a fall in glucose are considered to be diagnostic features which are nearly always confirmed

by complement fixation. Globulin and protein tests and the colloidal curve were found unreliable and non-specific in the 11 cases described. P.M.B.

276—Revista de Ginecologia e d'Obstetricia.

- a. GUTMAN, A. S., 1951.—"Tratamento das helmintoses na gestação." 45 (1), 29-40.

277—Revista Kuba de Medicina Tropical y Parasitología.

- a. BASNUEVO, J. G., COWLEY CHÁVEZ, O., LAVÍN, F., PÉREZ CRUZ, D., SOTOLONGO, F. & BLANCO RABASSA, E., 1951.—"Los enemas de hexylresorcinol en el tratamiento de la tricocefaliasis." 7 (3/4), 37-47. [English summary p. 47.]
- b. BASNUEVO, J. G., COWLEY CHÁVEZ, O., SOTOLONGO, F., BLANCO RABASSA, E. & ACHKAR, R., 1951.—"Tratamiento de la tricocefaliasis por los enemas de hexylresorcinol llevados hasta el ciego." 7 (3/4), 48-50.
- c. BONILLA NAAR, A. & RODRÍGUEZ VELANDIA, O., 1951.—"Amibiasis autóctona en Bogotá (2,640 Mts.) e incidencia de parásitos intestinales en la clase media. (Parasitismo intestinal y eosinofilia)." 7 (3/4), 52-53.
- d. BASNUEVO, J. G. & COWLEY CHÁVEZ, O., 1951.—"Enemas de Santokin para el tratamiento de la tricocefaliasis y la oxyuriasis. (Quimio-coloido-terapia anti-parasitaria intra-intestinal)." 7 (3/4), 55-56.

(277a) Basnuevo *et al.* describe seven cases of trichuriasis in children aged 3-10 years, in which complete removal of the parasites from the rectal mucosa was obtained by hexylresorcinol enemas. The mixture recommended is 1 gm. hexylresorcinol per 300 c.c. of a 10% barium suspension which must be carried up to the caecum and should be administered three times at intervals of five days. P.M.B.

(277b) Basnuevo *et al.* believe that 95% of cases of trichuriasis can be cured by the use of rectal and duodenal applications of hexylresorcinol. Following thorough cleansing of the colon by enemas the previous evening and on the morning of treatment, an enema of hexylresorcinol and barium [see preceding abstract] is given using a fluoroscopic screen to ascertain the volume required to reach the caecum. The quantities recommended are, 2 gm. hexylresorcinol in 400-800 c.c. for children according to age and weight, and up to 4 gm. in 1,200 c.c. for adults. Two to four further enemas, using a 5% solution of gum arabic instead of barium are then given at intervals of 2 or 3 days. If there is not a complete cure a week after the end of treatment a duodenal application of the same mixture is advised, 0.15 gm. per year of age in 30 c.c. of 2% solution of gum arabic for children up to 10, and 1.5 gm. in 300 c.c. for older children and adults. When a combination of the above methods did not give a complete cure, treatment with pentavalent arsenicals was found effective. P.M.B.

(277c) The following helminth incidence is reported among 200 "middle-class" inhabitants of Bogotá, Colombia, where the infections are considered to have been acquired: *Trichuris trichiura* 19.5%, *Ascaris lumbricoides* 10%, *Taenia* 1.5%, hookworm 1% and *Strongyloides stercoralis* 1%. In a study of eosinophilia associated with parasitic infections, the cases where this occurred most regularly were those of ascariasis. P.M.B.

(277d) Basnuevo & Cowley Chávez give details for administering enemas of "Santokin" [= hexylresorcinol with glycerin], with which very good results have been obtained in cases of trichuriasis and enterobiasis. Simultaneous treatment with Trifer 10 or Kutan which increases the efficacy of "Santokin" and improves the patient's general condition is recommended. P.M.B.

278—Revue Horticole Suisse.

- a. SAVARY, A., 1951.—"Les anguillules des chrysanthèmes." 24 (3), 72-76; (4), 109-115.

(278a) Savary gives a popular account of plant parasitic nematodes in general and deals in particular with the chrysanthemum eelworm (*Aphelenchoides ritzema-bosi*) and the

symptoms of disease caused by it. He reviews methods of control and gives an account of his experiments with sodium selenate. He successfully controlled eelworm in chrysanthemums in several nurseries and large plantations by applying a solution of 3 gm. in 10 litres of water per square metre of soil. He points out the dangerous nature of sodium selenate and the precautions necessary in its use.

M.T.F.

279—Science Technologists Association Bulletin. London.

- a. PESTER, F. R. N., 1951.—“Notes on the preparation of *Taenia* spp. segments for diagnostic and teaching purposes.” 2 (6), 2-3.

(279a) Pester describes a technique for preserving whole tapeworms without shrinkage or distortion. The worms are allowed to relax thoroughly, then wound on to a suitable vessel (e.g. a winchester quart bottle) and immersed in 10% formol saline. He gives details of three methods for the preparation of permanent mounts of mature and gravid segments; for rapid diagnosis he recommends the injection of waterproof Indian ink into the uterus before fixation. Segments treated in this way can then be fixed and made into permanent mounts if desired.

S.W.

280—Scientific Reports of the Murray Expedition.

- a. SEWELL, R. B. S., 1951.—“The epibionts and parasites of the planktonic Copepoda of the Arabian Sea.” 9 (4), 255-394.

(280a) Sewell includes in his report a description and five figures of two hemiurid metacercariae, of which one was found in *Clausocalanus furcatus*, and the other in *Corycaeus (Corycella) gibbulus* and *Oncaea venusta*.

S.W.

281—Seed Notes. National Institute of Agricultural Botany. Cambridge.

- a. ANON., 1951.—“Control of stem eelworm in clover and onion seed.” No. 38, 7 pp.

(281a) This semi-popular publication refers briefly to the methyl bromide fumigation method devised in 1945 by T. Goodey [for abstract see Helm. Abs., 14, No. 119b] for onion seed and applied in 1949 by J. B. Goodey [for abstract see Helm. Abs., 18, No. 214f] to red clover and teasle seeds and at some length to the investigations of L. N. Staniland [for abstract see Helm. Abs., 19, No. 89 l] on the use of iodine and chlorphenol in solution against the seed-borne infestation by *Ditylenchus dipsaci* of these seeds.

J.B.G.

282—Smallholder. London.

- a. CROSBY, J., 1951.—“Stunted tomatoes should be suspect.” 85 (2139), 9.

(282a) Crosby gives a short popular account of *Heterodera rostochiensis* on tomatoes.

S.W.

283—South African Medical Journal.

- a. VAN WEZEL, R. L., 1951.—“Bilharziasis in the Transvaal. Its diagnosis and incidence.” 25 (3), 44-47.
b. KELLER, P. & HIDE, C. G., 1951.—“Sterilization of sewage sludges. Incidence and relative viability of *Ascaris* ova at sewage disposal works in the Johannesburg area.” 25 (20), 338-342.

(283a) The incidence of *Schistosoma haematobium* in 15,000 unselected European and native children and adults in various parts of the Transvaal is tabulated. There was a variation of 0% to 14% proved incidence and 0% to 19% probable incidence. The disease

can vary remarkably within a small area. Thus in the Pilgrim's Rest district of Eastern Transvaal the proved incidence was 47%. Among natives in the Eastern and Northern Transvaal the average proved incidence was 44.5%. *S. mansoni* eggs were found by rectal biopsy in 15 out of 30 native patients in Eastern Transvaal; 13 of these also had *S. haematobium*. R.T.L.

(283b) An investigation of sewage sludges at various disposal works in Johannesburg indicates that infection of the native population with *Ascaris lumbricoides* is very high. Tables are given showing the average number of *Ascaris* ova per ml. of raw and digested sludges from the various sewage disposal works. The average relative viability of the ova was: raw sludge, 73.7%; digested sludge, 56.7%; digested sludge, drying, 50.5%; dried sludge, 38.7%. Sewage sludge can be converted into a safe fertilizer by heat treatment but its sterilization will not eliminate ascariasis unless steps are also taken to cure the carriers in the native population. R.T.L.

284—Sovetskaya Meditsina.

- a. BOGOPOLSKAYA, P. V., 1951.—[Case of ascariasis in infant.] Year 1951, No. 4, p. 32. [In Russian.]

285—Tasmanian Journal of Agriculture.

- a. WADE, G. C., 1951.—"Bulb eelworm." 22 (2), 136-137.

(285a) In Tasmania eelworm is a common infection of bulb crops and is particularly serious on narcissus species. D-D mixture is the most suitable chemical method of control for large scale use. 2-3 c.c. should be applied by a special soil injector or poured into holes made by a dibber at 9 in. intervals and covered with bags or stout paper for about three days. The treated area should not be planted for about a fortnight. R.T.L.

286—Technical Bulletin. Ministry of Agriculture and Fisheries. London.

- a. GOODEY, T., 1951.—"Laboratory methods for work with plant and soil nematodes." No. 2, 2nd edit., 25 pp.

(286a) In this new edition some of the methods described in the first edition have been amended and additional techniques and apparatus have been described and illustrated. R.T.L.

287—Terre Marocaine.

- *a. MARCHETTI, 1951.—"Le rôle des chiens dans la transmission de certaines maladies parasitaires." 25, 111-112.

288—Texas Journal of Science.

- a. CHANDLER, A. C., 1951.—"Trematodes from the man-o-war bird, *Fregata magnificens rothschildi*, on the Texas coast, with the description of a new species, *Schwartzitrema seamsteri*." 3 (2), 186-189.

(288a) Chandler records *Galactosomum fregata* from *Fregata magnificens rothschildi* and differentiates it from *G. cochleariforme* from the same host. He describes and illustrates *Schwartzitrema seamsteri* n.sp. from *F. m. rothschildi*; this is distinguished from *S. schwartzi* chiefly by the cupping of the forebody for three quarters of its length as opposed to one half its length in *S. schwartzi*, and also by its closer resemblance to a typical strigeid. Chandler emends the diagnosis of the genus *Schwartzitrema*. S.W.

289—Tijdschrift voor Diergeneeskunde.

- a. BAUDET, E. A. R. F. & VERWEY, J. H. P., 1951.—“*Protostrongyloides cervi* n.g., n.sp. als oorzaak van een dodelijke bloeding in de schedelholte bij een hert (*Cervus elaphus*).” 76 (13), 485-488. [English, French & German summaries p. 488.]
- b. RAADSHOOVEN, F. H. VAN, 1951.—“Strongylose van het paard.” 76 (14), 591-598.

(289a) Baudet & Verwey describe and illustrate a new species of nematode of the subfamily Protostrongylinae, family Metastrongylidae, from a deer (*Cervus elaphus*) in the region of Imbosch, Province of Gelderland, Netherlands. Because it has certain morphological features in common with *Protostrongylus sagittatus* (Müller, 1890) they designated the name *Protostrongyloides cervi* n.g., n.sp. for this parasite which was recovered from the cranial cavity of a deer which is believed to have died from a subdural haemorrhage provoked by the worms. The parasites were recovered from the blood clot in the chorioid plexus and on the surface of the cerebellum. Specimens of this species were recovered also from the cranial cavity and the cervical and lumbar portions of the spinal canal of a four-year-old doe of which the carcass had been partly devoured by wild pigs. A preliminary investigation of the histo-pathological lesions associated with the infection reveals that the worms may occur subdurally also. This worm can be readily differentiated from the members of the genus *Protostrongylus* by the presence of four dorsal rays instead of the compact mass representing the dorsal rays in protostrongyles. P.L.ler.

(289b) Raadshooven deals with the causes, diagnosis, clinical features, prognosis and medicinal and prophylactic treatment of strongylosis in the horse in the Netherlands. It is noted that in the past the term “strongylosis” was accepted to indicate the verminous aneurysms caused by “*Str. vulgare*” but that in this communication it indicates intestinal strongylosis due to infection with the large and the small strongylids inhabiting the large intestine. “*Str. edentatus*” which occurs not infrequently subperitoneally is seldom pathogenic. “*Str. equinus*” is of still less importance. Strongylosis is chiefly due to the small strongylids especially the *Trichonema* spp. and hence the substitution of the term trichonemiasis for strongylosis. This condition is very widespread and horses of all ages are affected. The larvae of *Trichonema* spp. may be present in enormous numbers in the submucosa of the large intestine. The adults occur in the lumen of the bowel where they are attached to the mucosa and provoke a chronic enteritis. Loss of epithelium results in a reduced absorption of food and leads to emaciation. Reduced absorption of water and increased peristalsis result in the evacuation of rather soft faeces. Raadshooven then deals in detail with the many difficulties encountered and the tests to be conducted in making a diagnosis. The clinician is advised to test all thin animals for tuberculosis. White cell counts, the bilirubin content of blood serum, ratio of blood serum albumin to globulin, in cases of oedema of the chest and abdomen, and egg counts are of little value in making a diagnosis. A knowledge of the haemoglobin content of the blood is the most important factor. Increases in body temperature, pulse rate and respiration are not contra-indications of strongylosis. As a rule, prognosis is grave only in cases showing severe anaemia and loss of appetite. Phenothiazine is the best and safest anthelmintic. Treatment should be repeated in 6-8 weeks. Pastures should be changed weekly and not regrazed for 4-5 weeks. P.L.ler.

290—Tijdschrift over Plantenziekten.

- a. SEINHORST, J. W. & BELS, P. J., 1951.—“*Ditylenchus destructor* Thorne 1945 in champignons.” 57 (5), 167-169. [English summary p. 169.]

(290a) A species of *Ditylenchus* which showed no consistent morphological differences from *D. destructor* has been found causing a gradual disappearance of the mycelium in mushroom beds at Maastricht and elsewhere in Holland. Potato tubers and mushrooms cultured in petri dishes were inoculated with material from the infected beds and with *D. destructor* from mangolds previously infected from potatoes. In both experiments the

potato tubers and the mushroom mycelium were attacked by the inoculum from both sources. Seinhorst & Bels conclude therefore that the *Ditylenchus* attacking the mushroom beds is *D. destructor*. The disease is called "ruimte moeheid" (room-sickness). R.T.L.

291—Transactions of the American Microscopical Society.

- a. ULMER, M. J., 1951.—"*Postharmostomum helici* (Leidy, 1847) Robinson 1949, (Trematoda), its life history and a revision of the subfamily Brachylaeminae. Part I." 70 (3), 189-238.
- b. BOUCHARD, J. L., 1951.—"The platyhelminthes parasitizing some northern Maine Amphibia." 70 (3), 245-250.
- c. FERGUSON, F. F. & CHEN, Y. C., 1951.—"Histology of the 'excretory system' of the swine nematode, *Ascaris lumbricoides* Linnaeus, 1758." 70 (3), 257-264.
- d. JONES, A. W., 1951.—"The chromosomes of *Davainea proglottina*." 70 (3), 272-273.

(291a) The metacercariae of *Postharmostomum helici* of which the principal host at Ann Arbor, Michigan, is *Anguispira alternata*, reached sexual maturity in eight days after feeding to laboratory reared *Peromyscus maniculatus*. The eggs appeared in the faeces on the 19th or 20th day and contained well developed embryos. The eggs hatch in the intestine of the snail and the miracidia develop into many-branched mother sporocysts in the connective tissue of the gut and liver. The sporocysts, which usually develop in seven to eight weeks, produce branching daughter sporocysts which give rise to cercariae. These emerge from the snail twelve weeks after infection. The cercariae enter the second molluscan intermediary through the renal pore, enter the kidney and thence reach the pericardial chamber. When a second lot of metacercariae were fed to the experimental deer mice, a far lower percentage of worms was recovered than from the initial infection. R.T.L.

(291b) Eleven species of trematodes and one cestode were obtained by Bouchard from 195 Amphibia collected in the vicinity of Presque Isle, Aroostook, Maine, U.S.A. The nematodes are not dealt with in this paper. The new host records are: *Gorgoderina translucida* in *Triturus viridescens*, *Rana clamitans*, *R. septentrionalis* and *R. sylvatica*; *Gorgoderina attenuata* in *Bufo americanus* and *Rana septentrionalis*; *Glypthelminis quieta* in *B. americanus*, *R. palustris* and *R. septentrionalis*; *Cephalogonimus americanus* in *R. clamitans* and *R. septentrionalis*; *Pneumonoeces longiplexus* in *R. clamitans* and *R. septentrionalis*; *Cylindrotaenia americana*, *Gorgoderina simplex*, *Loxogenes arcanum*, *Megalodiscus temperatus*, *Pneumonoeces medioplexus* and *P. similiplexus* in *R. septentrionalis*. R.T.L.

(291c) The so-called excretory system of *Ascaris lumbricoides* from the pig is shown to be multicellular. There are numerous anterior ganglionic cells in the tubule walls above the level of the "arcade" which is a simple transverse tube without nuclei. The basic work of Goldschmidt (1906) and Mueller (1929) is confirmed. R.T.L.

(291d) Jones describes the chromosomes of *Davainea proglottina*. All appear to be acrocentric and the diploid chromosome number is 18, which is higher than in most cestodes previously studied. The meiotic stages in spermatocytes and oocytes are similar and in no way exceptional. Chiasma frequencies, although not worked out appear to be low. S.W.

292—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. MANSON-BAHR, P., 1951.—"Recent investigations on filariasis in Fiji." [Demonstration.] 45 (1), 12.
- b. MANSON-BAHR, P., 1951.—"A spurious blood parasite from Fiji." [Demonstration.] 45 (1), 12.
- c. ABBOT, P. H., 1951.—"X-ray showing calcified guinea-worms round the hip joint and in the pelvis." [Demonstration.] 45 (1), 14.
- d. HUNTER, III, G. W., RITCHIE, L. S. & TANABE, H., 1951.—"The epidemiology of schistosome dermatitis ('koganbyo') in Japan." 45 (1), 103-112.

- e. MESSENT, J. J., 1951.—"Treatment of urinary schistosomiasis with nilodin." 45 (1), 127-129.
- f. MANSON-BAHR, P., 1951.—"Demonstration of colour film of filariasis in Fiji." 45 (2), 154-156.
- g. STANDEN, O. D., 1951.—"The effects of temperature, light and salinity upon the hatching of the ova of *Schistosoma mansoni*." 45 (2), 225-241.
- h. HUGHES, M. H. & DALY, P. F., 1951.—"Onchocerciasis in the southern Gold Coast." 45 (2), 243-252.
- i. PIPKIN, A. C., RIZK, E. & BALIKIAN, G. P., 1951.—"Echinococcosis in the Near East and its incidence in animal hosts." 45 (2), 253-260.
- j. SENOO, T. & LINCICOME, D. R., 1951.—"The presence of Malayan filariasis in Korea." 45 (2), 269-273.

(292a) Development of the non-periodic microfilaria *Wuchereria bancrofti* var. *pacifica* is arrested on the fourth day in the forest mosquito (*Aedes scutellaris horrescens*) which inhabits the whole interior of the main Fijian islands. In locally bred *Culex fatigans* on the Island of Rambi, the development of the nocturnal microfilaria of *W. bancrofti* takes place normally.

R.T.L.

(292b) The nematode eggs, larvae and adults found in blood films by Amos in natives of Rarotonga and by Manson-Bahr in a Fijian in Suva have now been identified by Goodey as those of a free-living species of *Aphelenchoides*. The source of contamination was not ascertained but was probably the water used in the laboratory.

R.T.L.

(292d) An abstract of this paper appeared in *J. Parasit.* 36 (6, Sect. 2) Suppl. p. 12 [for abstract see *Helm. Abs.*, 19, No. 337k]. The aetiological agent of schistosome dermatitis in Japan was shown to be an avian schistosome named therein *Gigantobilharzia sturniae* Tanabe n.sp. but was not described. The name is repeated in this paper as a new species but is still undescribed [and is consequently a *nomen nudum*]. The epidemiology of "koganbyo" is now dealt with in greater detail. The endemic area is defined. Its prevalence and severity is discussed. In the most highly endemic centres it occurs in over 75% of the population. The occurrence of the intermediary *Polypylis hemisphaerula* is correlated with the farm practices associated with rice cultivation. The disease reaches its peak from mid-July to mid-August when the paddy fields are first weeded. The incidence of snail infection ranges from 1.9% to 16.7%. The starling is the chief definitive host but sparrows and wagtails are also naturally infected. A map of the prefectures in which *P. hemisphaerula* has been reported and/or collected by the authors shows that the vector is widespread in Japan.

R.T.L.

(292e) Seventy-two cases of urinary schistosomiasis in the Gold Coast were treated orally with nilodin. In 22 of these the dosage was at the rate of 60 mg. per kg. body-weight. In 50 of the cases 75 mg. per kg. body-weight was given. The tablets were taken twice daily for three days. The results are tabulated. In the first group the apparent rate of cure was 52.6% in 3-4 weeks. In the second group it was 64%. In ease of administration, lack of toxic reactions and minimal loss of working time, nilodin has advantages over sodium antimony tartrate and anthiomaline.

R.T.L.

(292g) Standen has investigated the effects of variation in temperature, light and salinity on the hatching of *Schistosoma mansoni* eggs. Although 4°C. inhibits hatching, it does not materially affect the viability of the miracidia when favourable conditions are restored; 28°C. is the optimum temperature for hatching; 37°C. has an inhibitory effect. Bright light promotes, and darkness almost completely inhibits hatching. Plain water provides optimum conditions while increased salinity even as low as 0.05% and above 0.6% is inhibitory. The best yield of miracidia is obtained when fresh water is used throughout sedimentation and incubation and when low temperature and darkness inhibit hatching during sedimentation.

R.T.L.

(292h) Onchocerciasis volvulus has so far only been recorded from the Northern Territories of the Gold Coast although *Simulium damnosum*, the only vector in the Gold Coast, has been collected from widely scattered localities in the South. Hughes & Daly now report an endemic focus near the lower reaches of the Volta, the only previous record being that of O'Neill, 75 years ago. They show that ocular lesions were nearly three times as frequent in those with microfilariae in the eyes as in other persons with *Onchocerca* nodules but whose eyes were not infected. Evidence of onchocerciasis was present in 82% and 68.1% of those examined in Agbotia and Atimpoko, two riverside villages on the Volta. There was a blindness rate of 7% in the population of Atimpoko and an impairment of vision in 34% of those with microfilariae in the eyes as determined by conjunctival biopsy or by direct examination with a slit-lamp and corneal microscope. R.T.L.

(292i) That 385 cases of hydatid have been reported in Lebanese, Syrian, Iraqi and Palestinian hospital records during the past 25 years indicates that this disease is of considerable importance in the Near East. The incidence of *Echinococcus granulosus* in the dog in this region varies from 17% to 33%. Among sheep the disease fluctuates between 4.6% and 41.4% in individual flocks. In cattle it varies from 8.4% to 47% and in camels between 67.4% and 100%. A table shows the incidence in man and animals in the Near East, New Zealand, Australia and South America and is based on published reports. R.T.L.

(292j) Six hundred and four of 5,000 persons from 25 villages examined in the South Korean areas of Quelpart Island, South Ch'ungchong-Do, North Cholla-Do, South Cholla-Do, North Kyongsang-Do and South Kyongsang-Do showed microfilariae identified as *Wuchereria malayi*. Although no *W. bancrofti* microfilariae were found, it is thought possible that both species may be present. *Anopheles hyrcanus* var. *sinensis*, an important vector in China, is present in Korea but has not yet been implicated. R.T.L.

293—Tropical Medicine News.

- a. BIRCH, C. L., 1951.—[Correspondence.] 8 (1), 20.
- b. MAGATH, T. B., 1951.—"Present status of filariasis among veterans." 8 (3), 10-11.
- c. RODRIGUEZ-MOLINA, R., 1951.—"Schistosomiasis mansoni in Puerto Rico." 8 (5), 14-15.

(293a) Birch reports that during a visit to the Belgian Congo, Dr. Becker showed him *Onchocerca volvulus* nodules in various sites in the viscera, including the testis, as well as under the skin [see *Ann. Soc. belge Méd. trop.*, 30, pp. 9-10]. R.T.L.

(293b) About 16,000 U.S. soldiers and marines who served in the Pacific area during World War II were found to be infected with filariasis but it is highly improbable that this estimate is reliable as in many cases the signs and symptoms were obscure or suggestive. A pilot study to determine the present status of these cases has shown that a large percentage had other diagnoses of which the most common were forms of psychopathic difficulty or psychiatric problems and that very few could be definitely said to be due to filarial infection. R.T.L.

(293c) Of 15,831 Puerto Rican males who had passed all the physical requirements for the U.S. Army in 1944, 14.6% showed eggs of *Schistosoma mansoni* in their faeces. In 1949 the mortality, at a local hospital, from ruptured oesophageal varices producing uncontrollable massive haemorrhage was 4%, 2% being cases of schistosomiasis mansoni cirrhosis and 2% had Laennec's cirrhosis. Palliative therapy by splenectomy and oesophago-gastrostomy with vagotomy has improved the general condition in some cases. R.T.L.

294—Veterinarski Arhiv.

- a. MARZAN, B. & TURNER, V., 1951.—“Prilog poznavanju patologije domaćih životinja. (Dijagnostički materijal Zavoda za pat. anatomiju Veterinar. fakulteta u Zagrebu u razdoblju od 1945.–1949. god.)” 21 (7/8), 319–344. [English summary pp. 343–344.]

(294a) Marzan & Turner tabulate the results of their examination of pathological material obtained at autopsies on 10,749 animals belonging to 73 different species and including 10,240 animals of economic importance chiefly from Zagreb and the surrounding region. The infections due to helminths are listed under the associated diseases without specific identifications.

R.T.L.

295—Veterinary Medicine.

- a. HOERLEIN, B. F., 1951.—“Further studies on the chemical treatment of soil infected with larvae of the dog hookworm (*Ancylostoma caninum*).” 46 (9), 350–355.
 b. WHITNEY, L. F., WHITNEY, G. D. & MARTIN, L., 1951.—“A study of canine fecal examinations.” 46 (10), 377–382, 418.
 c. TODD, A. C. & WYANT, Z. N., 1951.—“On the blood picture of sheep exposed to the medium stomach worms. II. The leukocytes.” 46 (10), 390–396.
 d. SPINDLER, L. A., 1951.—“Effect of parasites on the growth of pigs.” 46 (11), 421–427.
 e. BAKER, D. W., 1951.—“Mal de caderas or severe parasitism.” 46 (11), 462.

(295a) Hoerlein supplements his previous report on the effect of various chemicals in the treatment of soil infected with *Ancylostoma caninum*. He describes new field tests in which sodium borate gave excellent results when accompanied by good canine husbandry. He recommends that dogs should be dosed with tetrachlorethylene and a non-oily laxative and then put on runs freshly treated with sodium borate applied at the rate of 10 lb. per 100 sq. ft. Excrement should be removed daily and the dogs treated and removed to fresh runs at four to eight week intervals during spring and summer. Light soil requires more frequent treatment than heavy soil. Pregnant bitches should be dosed with an anthelmintic during gestation. Clinical ancylostomiasis and anaemia in puppies should be treated by dosing for worms, giving blood transfusions and dosing daily with 2.5 to 5 grains of ferrous sulphate; this may be supplemented by injections of 0.5 c.c. to 1.0 c.c. of crude liver extract and 0.5 c.c. to 1.0 c.c. of vitamin B₂ given twice weekly.

S.W.

(295c) Todd & Wyant have continued their study of the blood picture of sheep with sub-clinical infections of *Ostertagia circumcincta* and *O. trifurcata*. [For abstract of previous part see Helm. Abs., 20, No. 54b.] They illustrate with graphs the total and differential white cell counts in three lambs. Lamb No. 1, which was infected with 300 infective larvae by stomach tube when less than one month old and with 6,400 after an interval of 200 days, showed no marked trend in total white cell count. Lamb No. 2 (aged less than one month) and lamb No. 4 (aged five months) were each infected with 6,400 larvae and showed progressive but not constant decreases, both in total white cell count and in lymphocytes. A second similar infection 107 and 56 days later respectively, caused this condition to be reversed in both cases. The lowest total counts for lambs Nos. 2 & 4 occurred at 33 and 23 days after the first exposure to infection, and after a slight recovery when the parasites reached maturity a decreasing trend was resumed. Monocyte trends varied considerably from one lamb to another. Lamb No. 2, which was the most seriously affected and the only one to show eosinophilia, had a tendency towards neutrophilic leucopenia 55 days after the first exposure. Neutrophils increased moderately in all three lambs on the second occasion; basophils showed no response to the infection.

P.M.B.

(295d) Spindler summarizing some of his recent work recalls that his experiments indicated that the presence of adult *Ascaris* in the intestines of pigs may have deleterious effects as well as the migration of the larvae in the liver and lungs; that *Strongyloides ransomi* infections can retard growth severely; that pigs which had been fed on milk were free from parasites or were only slightly infected, and that they showed superior weight gains.

R.T.L.

(295e) In Paraguay, livestock owners and estancia managers consider "mal de caderas" to be the most serious and prevalent disease of horses but at post-mortem examinations Baker failed to find evidence of *Trypanosoma* infection. The animals were very heavily parasitized by helminths. The cause of the debility and chronic starvation is attributed to the submucosal lesions caused by encysted strongylid larvae which were present throughout the entire surface of the caecum and colon and prevented absorption of nutrients. Baker also reports the occurrence in an old zebu cow from Brazil of *Syngamus laryngeus* in large numbers. There was marked oedema of all the tissue in the laryngo-pharyngeal region.

R.T.L.

296—Veterinary Record.

- a. HUDSON, J. R., 1951.—"Notes on husk." 63 (45), 701-703. [Discussion pp. 704-706.]
- b. TAYLOR, E. L., 1951.—"Further notes on husk." 63 (45), 703-704. [Discussion pp. 704-706.]
- c. SELLERS, K. C. & TAYLOR, E. L., 1951.—"A controlled observation on the value of antimony lithium thiomalate ('Anthiomaline') in the treatment of husk in cattle." 63 (45), 707-709.
- d. KENDALL, S. B., 1951.—"Carbon-tetrachloride poisoning in cattle." [Correspondence.] 63 (45), 716.
- e. SMYTHE, R. H., 1951.—"Husk." [Correspondence.] 63 (47), 744.
- f. TUTT, J. F. D., 1951.—"Husk." [Correspondence.] 63 (47), 744-745.
- g. TAYLOR, E. L., 1951.—"Husk." [Correspondence.] 63 (48), 810.

(296a) Hudson comments on the occurrence of husk in adult cattle in England. Since 1947 he has seen 26 outbreaks of coughing in cows and in-calf heifers; husk was confirmed in 15 of these, and was probably the cause in a further eight of the outbreaks. In adult cattle the disease is often less acute but more persistent than in young stock, and is frequently associated with secondary bacterial infections. Experimental work on diagnosis by means of a polysaccharide antigen prepared from dried, defatted worms has not so far given satisfactory results. Using the skin test the period during which the animal may react is very limited (the swelling begins to disappear less than three hours after injection); for the complement-fixation test an antigen which is sufficiently specific and still produces a reasonable titre has not so far been developed and at present a negative result has no significance. Hudson also describes an outbreak in bull calves which had been kept in covered yards although reared on cows which were out to grass, and a peculiar syndrome which may occur associated with husk in Guernsey heifers.

s.w.

(296b) Taylor reviews the concept of husk as an acute disease of young animals and questions whether its appearance in adult cattle is a recent development of the disease or due to its lack of recognition in previous years. Epidemic coughing in cattle may be due to causes other than lungworms and work remains to be done on the differentiation of the diseases. A severe outbreak made it possible to carry out a controlled experiment on treatment, the results of which indicate that anthiomaline is useless [for detailed account see following abstract]. During the discussion intratracheal injection, other possible methods of treatment, and diagnosis were mentioned.

s.w.

(296c) Sellers & Taylor describe a controlled experiment on the treatment of husk in cattle, using anthiomaline. The 49 cattle used were of mixed breeds and sex and varied in age from 18 months to 31 months. Only one out of 20 faecal specimens examined contained lungworm larvae; post-mortem examination of the lungs of three animals slaughtered showed early fifth stage *Dictyocaulus* larvae. The animals were divided into four groups, one of which remained untreated, the other three being dosed with anthiomaline, anthiomaline plus phenothiazine, and phenothiazine respectively. Comparison of the weight gains in each of these groups showed no statistically significant difference and it is concluded that anthiomaline is of no value in the treatment of an acute outbreak of husk.

s.w.

(296d) Kendall records that zebu cattle and buffalo will tolerate a very high dose of carbon tetrachloride for the treatment of fascioliasis. A dose of 15 ml. for zebu cattle, 600 lb. to 700 lb. in weight, and of 22 ml. for buffalo is frequently given. s.w.

(296e) Smythe, in reply to a statement made during the discussion on husk [see No. 296b above], states that his objection to intratracheal injection is based on the fact that even if such injections kill the worms, severe damage will result from mechanical obstruction of the air passages. s.w.

(296f) Tutt reports that he has found husk to be of major importance in adult cattle for a number of years, and that adults are more difficult to treat than are young stock. s.w.

(296g) Taylor replies to a letter by Smythe on the dangers of intratracheal injections for the treatment of lungworms [see No. 296e above]. s.w.

297—Virginia Journal of Science.

- a. MILLER, L. I., 1951.—“A report on the effect of ethylene dibromide soil treatment on root-knot control, nodulation, and yield of peanuts.” New Series, 2 (2), 109–112.

(297a) In sandy root-knot soil Miller injected ethylene dibromide (20% v/v) 5 in. deep at 6 in. row-intervals, one week before planting Jumbo Runner peanuts. At harvest, root-knot and bacterial nodule scores were taken, with dry weights of roots, vines and nuts. Treated plots, compared with controls, gave rise to one third the root-knot score, three times the nodule score, and dry-weight increases of roughly 80% for roots, 55% for vines and 20% for nuts. The cause of the increased bacterial nodulation is not certain. B.G.P.

298—Wasmann Journal of Biology.

- a. MOORE, J. P. & MEYER, M. C., 1951.—“Leeches (Hirudinea) from Alaskan and adjacent waters.” 9 (1), 11–77.

(298a) Moore & Meyer's studies are based on their own collection of marine leeches from Alaskan waters, supplemented by material from the U.S. National Museum, and other leech collections, and on freshwater species principally from the Great Bear, Great Slave and Athabaska Lakes of northern Canada. The following marine species are described. (i) *Notostomobdella* nom. nov. for *Notostomum* Levinsen, 1882 (preoccupied), with *Notostomobdella cyclostoma* n. comb. from Alaskan waters. This species is normally free-living but one specimen has been recorded from a king crab and two from skate. (ii) *Otoniobdella* nom. nov. for *Ottonia* Malm, 1874 (preoccupied), with *Otoniobdella scorpii* n. comb. from Alaskan and Greenland waters. No host was found, but elsewhere normal hosts are *Cottus scorpius* and *C. scorpioides*. (iii) (?) *rectangulata* (in view of the doubt as to whether this species should be referred to *Piscicola* or *Platybdella* it is here left unassigned) which was normally found parasitic on cod or *Gadus macrocephalus* and once on *Myoxocephalus polyacanthocephalus*. This is thought to be probably identical with *Ichthyobdella uobir*. (iv) *Oxytonostoma arctica*, one specimen, host unknown, was found off Alaska. (v) A single specimen from Whale Sound is doubtfully identified as *Pontobdella*. The following freshwater species, most without host information are described: (i) *Glossosiphonia complanata*; (ii) *G. complanata mollissima* n. comb. for *G. mollissima* (which Livanow described as a *Theromyzon*) from a lake on Kodiak Island, Alaska; (iii) *Helobdella stagnalis*; (iv) *H. fusca*; (v) *Theromyzon rude* n. comb. for *Glossosiphonia rudis*; (vi) *Piscicola milneri*; (vii) *Haemopsis marmoratis*; (viii) *Erpobdella punctata*; (ix) *Nephelopsis obscura* and (x) *Dina dubia* n.sp., which is distinguished from *D. parva* by its larger size and heavy, spotted pigmentation. The division of the genera *Dina* and *Erpobdella* is discussed and it is suggested that a better division would be into one genus and three subgenera, based on the long preatrial loop of the sperm duct and the enlargement and division of annulus b6.

P.M.B.

299—Year Book. Institute of Inspectors of Stock of New South Wales.

- a. JONES, T. R., 1951.—“Case reports. 1.—Trichostrongylosis in merino weaners.” Year 1951, p. 71.

(299a) In New South Wales heavy infection with trichostrongyles is unusual during hot dry summer months yet between September 1950 and January 1951, about 160 out of 350 merino weaners were lost. Treatment with copper sulphate and nicotine followed 16 days later by dosing with phenothiazine, with movement of the animals to fresh pasture after each treatment, resulted in a return to normal within two months. R.T.L.

300—Zeitschrift für Angewandte Entomologie.

- a. SCHAEFFENBERG, B. & TENDL, H., 1951.—“Untersuchungen über das Verhalten der Enchytraeiden gegenüber dem Zuckerrüben nematoden *Heterodera schachtii* (Schm.).” 32 (3), 476-488.

(300a) This is a slightly fuller account of the experiments described by Schaefferberg in 1950 [for abstract see Helm. Abs., 19, No. 428b] in which he claims to have shown that by adding enchytraeids to soil containing sugar-beet plants infected with larval *Heterodera schachtii*, the nematodes in the host roots are destroyed by the young enchytraeids which enter the root tissues. The plants, which previously showed symptoms of nematode disease, recovered. Enchytraeids added after the nematodes have reached maturity do not attack the adult nematodes but feed on the decaying nematode-infected roots and hasten the death of the plants. Schaefferberg also claims that in experiments with sugar-beet grown in pots of soil rich in humus with the addition of enchytraeids, subsequent inoculation with nematode cysts does not lead to disease symptoms since the enchytraeids destroy the nematodes before they reach maturity. M.T.F.

301—Zeitschrift für Haut- und Geschlechts-Krankheiten.

- a. GOTTRON, H. A. & NIKOLOWSKI, W., 1951.—“Filariasis nodularis subcutanea.” 10 (6), 224-231.

(301a) Gottron & Nikolowski describe in detail a case of subcutaneous nodules in the extensor side of the upper arms of a 12-year-old girl. Sections from the nodules revealed fragments of worms which are described as “filarias” although no family diagnosis was possible. The child was seen at the Dermatological Clinic of Tübingen University and there was nothing in her history to explain a tropical source of infection. A.E.F.

302—Zeitschrift für Tropenmedizin und Parasitologie.

- a. ENIGK, K., 1951.—“Weitere Untersuchungen zur Biologie von *Strongylus vulgaris* (Nematodes) im Wirtstiere.” 2 (4), 523-535. [English summary p. 534.]
b. MINNING, W. & DING, P.-C., 1951.—“Hetrazan-Wirkung bei Frosch-Filariasis (*Icosiella neglecta*).” 2 (4), 535-543. [English summary p. 543.]

(302a) In order to study the bionomics of *Strongylus vulgaris* fourth-stage larvae, Enigk experimentally infected four foals which died or were killed on the 44th, 77th, 91st and 111th day respectively after infection. Post-mortems showed that after 44 days fourth-stage larvae are found almost exclusively in the thrombi of the aneurysms which occur mainly in the branchings of arteries damaged by penetrating larvae. These aneurysms hold up larval migration. Larvae can reach the intestinal wall by the 44th day after infection. The fourth ecdysis does not take place before the 90th day. From these studies and from examination of 14 equine fetuses, Enigk concludes that prenatal *S. vulgaris* infection does not occur. Pathogenic intestinal bacteria are not introduced into the host's blood stream by *S. vulgaris* larvae, which are not therefore responsible for the septic thrombi. Complement-fixing antibodies were present in large numbers as early as 13 days after infection. Two foals which were given repeated doses of larvae for periods of 45 and 105 days respectively developed high grade immunity. A.E.F.

(302b) Minning & Ding have treated natural *Icosiella neglecta* infection in *Rana esculenta* by means of oral administration of hetrazan. A total dosage of from 630 mg. to 3,000 mg. per kg. body-weight was administered over periods varying between 10 and 21 days. After three days a reduction of 75% in the number of microfilariae was observed and 13 out of 16 frogs were negative for microfilariae at the end of the period of treatment. A single dose per day gave the same results as when the daily amount was spread over three doses. A total of 11 adult worms was found in 14 treated frogs compared with 55 adults from 16 untreated frogs. A.E.F.

303—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. MINNING, W., 1951.—“Zur serologischen Diagnose von Trematodeninfektionen.” 157 (1/2), 43-44. [Discussion p. 45.]

(303a) Minning gives a brief review of serological methods for the diagnosis of trematode infections with special reference to schistosomiasis and fascioliasis. A.E.F.

304—Zoologicheskii Zhurnal.

- a. CHIZHOVA, T. P., 1951.—[The diphylobothriids occurring in gulls of the Baikal Sea.] 30 (3), 217-223. [In Russian.]

(304a) Chizhova examined *Larus argentatus* in the Baikal Lake district and found 50% of them infected with *Diphylobothrium* spp. From comparative studies of diphylobothriids of mammals and gulls, she places them in three groups. In the first group the scolex is elipsoid without neck and with bothridia widening anteriorly, the segments are short and wide with deep segmentation, the ovary is irregular in shape and the uterus without distinct configuration. In the second group the scolex is more or less distinct with a small neck, segmentation is superficial and the segments are slightly longer than those in the first group, the uterus and ovary are distinct. The third group, which is less well defined, showed a lengthening of the posterior segments with a larger genital apparatus, a long uterus and a characteristic ovary. In her opinion the differences between the *Diphylobothrium* species of mammals and those of gulls are small and are only seen when a large number of tapeworms are compared. She studied the proceroids of the diphylobothriids of gulls and man and found no difference either in their time of development or in their morphology. She was also unable to differentiate the plerocercoids of those found in fish. The time of development in experimental dogs and gulls infected with plerocercoids from fish was similar and varied from 21-28 days. C.R.

305—Zooprofilassi.

- a. PAPANDREA, E., 1951.—“Nuove osservazioni sulla terapia delle strongilosi gastro-intestinali degli ovini e dei caprini.” 6 (6), 243-247. [English summary p. 247.]

(305a) The copper sulphate and tetrachlorethylene treatment of gastro-intestinal strongylosis in sheep and goats was generally satisfactory under Sardinian conditions until 1945, after which time irregular results and a mortality of 3%-4% of the treated animals are attributed to the poor quality of the tetrachlorethylene available. In comparative tests on large numbers of sheep, good results were obtained with copper sulphate and sodium arsenate solution, and with copper and nicotine sulphate solution, provided the animals were properly fasted before treatment and were later transferred to clean and adequate pasture. Carbon tetrachloride in doses of 0.5-0.8 c.c. was ineffective. Phenothiazine gave the best and most consistent results; it was administered fasting in a dose of 0.5 gm. per kg. body-weight, maximum dose 12 gm., and the treatment was repeated 10 days later. Eggs disappeared from the faeces in 70% after one treatment, and in 90% after two treatments. There were no toxic effects, and the animals had completely recovered their condition after 50-70 days. E.M.S.

NON-PERIODICAL LITERATURE

- 306—AGRICULTURAL RESEARCH COUNCIL, 1951.—“Index of agricultural research in progress during 1951.” London: H.M. Stationery Office, viii + 53 pp., 3/6d.

This index briefly summarizes the 1951 programmes of research of the Agricultural Research Institutes, of organizations directly under the Agricultural Research Council and of those University Departments assisted by specific research grants from the Council or from the Ministry of Agriculture and Fisheries. The helminthological projects mentioned are fascioliasis in rabbits and *Dictyocaulus viviparus* at the Glasgow University Veterinary School; anthelmintics at the Heriot Watt College; helminths in hill sheep and the effect of chemicals on free-living stages of nematodes at the Department of Zoology, Edinburgh University; bionomics of free-living stages of nematodes at the Department of Animal Husbandry, University College of Wales; the nematode parasites of sheep at the Zoology Department of Bristol University; the parasite burdens of sheep, cows and poultry at the Rowett Institute, Aberdeen. Under “Plant Pests” are mentioned: the biological control of eelworms by predaceous fungi at the Regent Street Polytechnic, and general nematology (covering a wide field) at Rothamsted.

R.T.L.

- 307—GOFFART, H., 1951.—“Nematoden der Kulturpflanzen Europas.” Berlin: Paul Parey, 144 pp.

In his book Goffart describes the nematodes and associated symptoms of cultivated plants in Europe, excluding ornamentals which were dealt with by Pape in 1939. A general introductory section gives briefly the structure, biology and control of nematodes and is followed by a key to the common parasitic genera. In the main part of this comprehensive book the plants are grouped according to the purpose for which they are cultivated, e.g. cereals, fodder grasses, roots, legumes, vegetables, berries etc. In each group all plants are listed from which nematodes have been reported as parasites or suspected parasites. For each plant the associated symptoms are described and the geographical distribution of the nematode in the particular host is given, together with references to the literature on the subject. Each nematode species is fully described once and a reference to the description is given each time it is mentioned. 91 figures illustrate the nematodes and symptoms in the host plants and there are indexes both of plants and of nematodes, and a bibliography of 189 references. Gooseberry (*Ribes grossularia*), is recorded for the first time in Europe as attacked by *Aphelenchoides ritzema-bosi*, which caused sharply outlined brown blotches on the leaves.

M.T.F.

- 308—ROSS INSTITUTE INDUSTRIAL ADVISORY COMMITTEE, 1951.—“Schistosomiasis or bilharzial disease.” London School of Hygiene and Tropical Medicine, Information and Advisory Service, No. 6, 16 pp.

- 309—UNITED STATES DEPARTMENT OF AGRICULTURE, 1951.—“Index-catalogue of medical and veterinary zoology. Part 14. Authors: S to Shweig.” Washington, D.C.: U.S. Government Printing Office, pp. 4349-4676.